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The JOURNAL now ends its forty-seventh volume. It was established by the late Dr. Brigham, the first Superintendent of the Utica State Hospital, and after his death edited by Dr. T. Romeyn Beck, author of "Beck's Medical Jurisprudence." Dr. John P. Gray, with the Medical Staff of the Hospital as his associates, was editor-in-chief from the year 1854 until his death, in 1886. It is the oldest journal in America devoted especially to Insanity, its Treatment, Jurisprudence, &c., and is particularly valuable to the medical and legal professions, and to all interested in the subject of Insanity and Psychological Science.

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[Errata. See Diagram, p. 467. Insert head-lines "Elements of Reaction Time," and "4, Transformation:" also the designation, "Fig. 2."]

[Introductory Lecture. October 21, 1889. Wiener Klin. Wochenschrift, October 24, 1889.

Phiny Earle.

AMERICAN
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APRIL, 1891.

THE MECHANISM OF INSANITY.*

BY EDWARD COWLES, M. D.,
Superintendent of the McLean Asylum, Somerville, Mass.

II.—The Normal Mechanism in Use.

The position of the alienist is a difficult one, for the reason that the field of psychiatry is peculiarly limited. Psychological medicine has been charged with slow progress and an unscientific basis for its therapeutics. The alienist, more than other clinicians, has to contend with such incomplete ideas of the anatomy of the nervous system, as to render it scarcely possible to reason from structure to function, as has been done in the relatively simple structure of the vegetative organs; and he turns to pathology only to meet with disappointment in attempting to determine the lesions explanatory of even the most marked disturbances of function. The aid given to science by physics and chemistry is inadequate here, as psychiatry has found in applying all available means to the investigation of the complicated phenomena with which it has to deal. These are some of the reasons given by Krafft-Ebing in his defense of psychiatry, which he says "seems almost exclusively dependent on itself, and is limited to the direct observation of psycho-pathological phenomena; and from the empirical valuation of these is obliged to draw conclusions as to the kind and degree of the functional disturbance of the psychical organ."†

But if the alienist seeks for light from psychology as the science of mind in its normal manifestations, he sees the danger of which alienists have long been taught to beware,—that of being led into

*Continued from April number, 1890, vol. XLVI, p. 457.
[Errata. See Diagram, p. 467. Insert head-lines "Elements of Reaction Time," and "4, Transformation;" also the designation, "Fig. 2."]

†Introductory Lecture, October 21, 1889. Wiener Klin. Wochenschrift, October 24, 1889.

the mazes of speculation and introspection. Still his patients are often nothing if not introspective, and in their mental entanglements they are continually crying out for help; if the physician is to give release he must get "in the midst of the patient's mind" and help him unravel his mysteries. The alienist clinician therefore sits at the bedside and questions for himself the manifestations of mental disorder,—it is to these, observed objectively, that he must give an "empirical valuation." He finds disorders of perception, memory and reason, and morbid depression or exaltation of feeling; he turns to the text-books on insanity and is only given certain descriptions of these manifestations, and definitions of illusions, hallucinations and delusions, implying on his part a previous knowledge of mental physiology; and he discovers in his patients that there are characteristic alterations of what is commonly understood as the attention. He finds himself dealing with symptoms which are normal or abnormal manifestations of function. In a word, in the default of anatomy and pathology, and while he is waiting for their contributions to his work, with his patients still making unceasing demands, he must study symptom and function and apply his therapeutics. His first recourse then, for scientific inquiry as to a normal basis for his observations of disordered functions, is physiology. The alienist clinician must therefore study the physiology of the whole bodily mechanism,—of nerves and brain even to the psychical function, at least objectively; and he may reduce the inter-relations of the varied manifestations of that function within the compass of physiological laws,—just as he listens to cardiac sounds with even yet more of ignorance than knowledge of the organ's finer mechanism, and reasons from expression in sounds to the laws of their co-ordination. But he must keep clearly in mind that, for the purpose of scientific inquiry into mental phenomena, he must rest upon clinical facts and the data of physiological law as proven by observation and experiment. He may bring the physiological laboratory into the hospital and apply all the useful instruments of precision to diagnostic purposes, and to the study of altered reactions in morbid conditions both of body and mind,—even to the discovery of new facts in the physiology of the nervous system. Then he may make a comparative study of these observations with the psycho-pathological phenomena whose "empirical valuation" is gained upon the basis of physiological psychology by a like objective method.

The alienist may therefore engage in researches in that branch of physiology called psycho-physics without the reproach of invading another province than his own legitimate one,—he simply avails himself of the enlargement of his own field by the new methods of scientific inquiry. But he must still never forget that he is purely a clinician looking to his co-laborers, in collateral fields, for what they can give him as aids in his efforts to construct an applied psychology. He may undertake to compass the conclusions of the anatomist, the pathologist and the physiologist for his clinical purposes. He may also remember the words of Sir James Paget that "the sick-room is a laboratory with its crucial experiments as real as those in which 'culture experiments' are instituted in bacteriology." He may clinically observe the disorders of attention, perception, memory, and other commonly recognized activities; but he may not borrow too freely even the elementary terminology of the psychologists without raising the suspicion that he is a seeker after the vain things of metaphysical philosophy; and anything that savors of the speculative is itself accounted a delusion and a snare. But the inertia of tradition and routine should not deter the alienist from seeking the aid of experimental pathology and psychophysics, and Krafft-Ebing* may again be quoted as the authority for the declaration that the rise of psychiatry to the rank of a natural science, with the methods of empirical research, is closely united to the names of Spencer, Bain, Maudsley, Herbart, Fechner, Wundt, and others. There has come, he says, "the endeavor to fix the phenomena and facts of the mental life by observation" and "the course of the processes in the psychoses are discovered through observation as in any other disease,"—proceeding from the law that mental disease is brain disease. Hence, while researches in kindred fields bring good to psychiatry, "its direct advancement can be accomplished only at the hand of tireless observation and report of clinical phenomena."

With these cautious limitations, it was the intention in the foregoing chapter to characterize the various elements of the normal mechanism in as simple terms as possible, for the practical purpose of setting up what we know of the activities involved, as a normal standard. This must be done in order that they may be separately discriminated to form at least a tentative basis for the

*Loc. cit.

comparative study of the morbid mental phenomena which we must and do clinically observe in conditions that we must endeavor to relieve. The simple object is to bring into view, with some degree of clearness, some definite conceptions of the physiological activities whose disorders are the immediate subjects of all clinical study in psychiatry. The group of words, "consciousness," "attention," "perception," "memory," etc., are in common use to express a common knowledge of mental operations: the definitions of these words may be found in any good dictionary, and will serve the purpose of providing some simple conceptions to begin with to which most can agree. If it be misleading to borrow from the psychological writers such explanatory definitions of the words above referred to, as were given in the foregoing chapter, let us discard all hint of speculation, and see what can be done by noting our bedside observations in plain and unpretending terms. If, as was said in the beginning, it is necessary to face the fact that there is a limitation of psychiatry to the study of physiological function and symptoms, let inquiry follow the lines of symptomatology quite independent of theory and speculation, The general purpose may then be restated as a comparison of observations of clinical phenomena, both of concurrent bodily and mental conditions, and a study of their relations with the activities of the normal mechanism.

In the exploration of a strange country it is well to have a chart of the land-marks as they are supposed to be, that none formerly observed may be lost sight of, and that new information may be noted in the proper places. Having constructed a diagrammatic conspectus of the nervous and mental activities for convenience in showing certain relations of the various parts of the mechanism, and having gained a general conception of what the nervous system can do, the next thing in order is to observe some of the phenomena resulting from putting the normal mechanism in use. In the observation of these phenomena of use, and the concomitant development of the organism from infancy to maturity, there are constantly appearing striking manifestations of the regular operation of forces and conditions that work under certain physiological laws. These laws are not only most important in the development of the perfect organism, but they are also potent in evolving and fixing disordered activities when once disorder is begun. These laws must be kept in mind as active factors in the working of the mechanism of insanity.

The Law of Habit.

The study of reflex action in the organism shows the familiar fact of the tendency of nervous action to follow certain lines of conduction along the sensory and motor nerves, and through transforming centres traversed before under like conditions, constituting the nervous circle and suggesting the analogy of "paths.' The well known effect of practice in the muscular mechanism conforms to the physiological law of use; and it must be taken for granted that analogous processes of practice take place everywhere in the nervous system and its accessory organs. After nervous activity a changed condition remains by which a repetition of the action is rendered easier, and in all processes dependent upon the nervous system there are after-effects which find their expression in what is called practice.* According to Wundt, the molecular changes in which this practice consists being unknown, it still claims material after-effects, which continue at first, but with no practice gradually fall away, and do not consist in a continuation of the function itself, but in facilitating its repetition; the remaining effects are to be thought of as functional dispositions. This functional disposition to repeat organic processes constitutes the law of habit.

The development of habit has this order: First experience, as the first time the path in the organism is traversed, next repetition becoming practice, which leads to habit, and then to habitude as a permanent fixedness of habit. Thus practice is fundamental to the law of habit, and the intimate connection of its effects with the reactions of the nervous system in decreasing the time are commonly observed by experimenters in psycho-physics. With this conception of the path of practice, and of the organic mechanism as having *plasticity*, there is suggested also the analogy of a "trace" as representing the changed condition after stimulation and the transmission of an impulse. There is also *stability* as a necessary condition for the retention of the "trace" and the organic changes corresponding with the final "habit" through the law of use. Thus it is conceivable that paths which have become more or less open according to their use may become less permeable by disuse, or temporary functional disorder, and that new paths may be established through new co-ordinations of centres and association-fibres. The elements of the

*Cf. Radestock, Habit. trans., pp. 15-16.

organic mechanism take on attitudes favoring the passage of these activities along certain lines of least resistance established by practice, and leading to organic changes within normal limits as corresponding to habits of action. Habits acquired determine differentiations and specializations of functions. The potency of these laws is manifest through the wide range of the influence of heredity, environment, and experience, including education, moral influences, accidents of disease and injury, etc.

The law of sensory and motor habit in the lower centres of the mechanism has a strictly physiological basis, and the process is a physiological one by which these neural habits are acquired, from the beginnings with the labored first efforts to the facility of the most automatic of reflex actions. Every manifestation of mind, in the correlation with a definite mode and sphere of brain activity, is subject to the law of habit, hence "habits of thought" corresponding to "paths" of activity in the organic mechanism within the limits of normal functional activities. The effects of the law of habit are most significant as to the evidence that during the acute stages of mental "storms," accidental changes in the play of nutrition, exhaustion, and toxic inhibition, disturb the wonted paths of nervous activity and ideation, and divert the currents into new created paths. Thus it may be conceived that morbid habits of ideation concomitant with acquired neural habits may remain an "habit-insanity" in an organism whose practical integrity may be restored without demonstrable organic lesion of brain cells.*

For these reasons the consideration of the constant influence of these laws of practice and habit should never be overlooked in the study of the disorders of physiological processes. Their influence in the genesis and perpetuation of morbid mental action is of the highest importance, and this is commensurate with the part they play in all the normal psychical processes. They are manifest in the differentiation and specialization of function, and are fundamental to the law of specific energy of nerves; and they appear in the native tendencies of the cerebral mechanism to reactions of a determinate sort as in the emotions and instincts. These and the results of evolutional changes in development, whether through the law of variation or the inherited effects of use, are to be held as part of the individual endowment. These native ten-

* Cf. James, Psychology, Vol. I, Chap. IV. Habit.
Ward. Art. Psychology, Encyc. Brit. XX, pp. 47-8.

dencies being thus established, there remains the essential dependence of the psychical activities of every individual upon the "education" of his higher centres through their connection with peripheral organs, the registering of the data of experience, and the effects of the laws of practice and habit.

These laws are fundamental to the theory of localization of cerebral functions as the specialization of function of certain centres; and the remarkable fact of the restitution of function after cortical injuries affords ample reason for believing that there is the formation of new paths in the remaining centres, by which they become "educated" to duties which they did not originally possess.*

The centres of psychical activity may therefore be regarded as having specific functions both native and acquired, both being manifestations of the law of habit, and the important principle that our nervous system in its elementary parts becomes "educated" to such specific functions. Thus the study of the law of specific nerve energy and its relations to the law of practice and habit furnishes important evidence not only of the plastic and changing character of our organic mechanism when put in use, but of the fixedness given by habit to modes of action long in use, alike in health and disease.

The Law of Association.

In the clinical observation of mental disorders, among the commonest and most striking manifestations of alteration is the derangement of the processes of ideation which constitute the memory as including the power of retaining and recalling ideas. In regard to these, the common phrases are used, such as those describing loss of memory for recent or long past events; or when there is alteration in the mode of recalling ideas it may be described as incoherence, rambling, increased flow of ideas, etc. Again, ideas are insistent, fixed, imperative, or delusional, and limited associations of ideas may dominate their train. If a clearer conception of the normal psychical processes is sought, the results of modern scientific inquiry may be found in the following general statement: "The tendency of recent studies in physiology and pathology has been to establish the importance of physiological processes in all acts of retention and reproduction. Such studies

*James, op. cit. Vol. I, pp. 24-30.

have shown that, whatever be the ultimate relation of mind to body, memory is dependent upon physical processes. A cerebral process of some kind is the physical concomitant of an idea, and the condition of the reproduction of the idea is the repetition of the original cerebral process. In some way the brain centres are modified by impressions; they retain in growth the form of their modification; and, on occasion of appropriate stimuli, they tend to repeat processes that have once occurred."* The physiological theory of memory being accepted, and retention and reproduction being regarded as at least in part having a physiological basis, its significance for the alienist is at once apparent. Habit, as a functional disposition to repeat organic processes, is intimately related to memory; Wundt and Ribot most prominently among recent writers have held to this view, now widely held, that the essence of memory is a functional disposition persisting in the brain. A nerve cell, or group of cells, receiving an impression is modified in some way, and retains an aptitude or disposition for reacting again in the same way; this is functional, not organic. In like manner every state of consciousness affects the nervous elements of the brain, and the nerve centre is functionally modified, so that the recurrence of the same mental state is rendered easier. Thus the physiological law of habit is fundamental to these processes of retention and reproduction, which include the association of ideas as the mode in which they return to consciousness. The elementary causal law of association is neural habit, and as the physiological basis of association may be stated this law: "When two elementary brain-processes have been active together or in immediate succession, one of them, on reoccurring, tends to propagate its excitement into the other."† The revival of our ideas is determined by the law of habit, the relation of which to memory has long been recognized; and both retention and recalling are due to the habit of the nervous system working by association.

The clinical observer, studying the processes of the psychoses, must then take note of the phenomena of retention, reproduction and association of ideas, and the power of control over these associations; it is precisely upon the alteration of what he has come to accept as normal processes in this regard that he bases largely

*Burnham. Art. Memory. Amer. Jour. of Psychol., Vol. II, p. 568.
†James, op. cit. Vol. I, p. 566.

the very diagnosis of insanity. The "empirical valuation" of morbid manifestations of these mental phenomena, that is commonly made by the alienist, has the greater value when, by careful study and comparison with the action of the normal mechanism, some conception is had of the due order and relations of the processes by a like "tireless observation." Then knowing what to look for, as he who is expert with the microscope, he may report what he sees, in the order of a logical statement, with more completeness and precision. These processes being physiological and subject to observation, may be studied without invading other fields than his own.

The phenomena of reflex actions, and the coördination of lower centres of the mechanism, with acquired automatism through the physiological law of use, practice and habit, reveal the working of the law of association of elementary activities of sensory and motor nerve tracts and centres. The clinician can not fail to observe the influence of the mind upon the body which Tuke describes, and if he reads Reynolds' paper on diseases due to fixed ideas or emotions, and Weir Mitchell's descriptions of the mimicry of disease,* there will be furnished abundant evidence of physiological association, not only between neural and muscular activities, but between these and psychical processes. The law of habit and association in the ideational sphere is only an extension of the general physiological law of neural activity, and may be studied from the strictly physiological side by the empirical method of observation and psycho-physic experiment.

The law of association of ideas, therefore, has the highest significance for the alienist, carrying with it all the potency of the laws of practice and habit, in determining the recurrence of morbid ideas and tending to fix their associations in the genesis of delusions. He also observes incoherence and facility as alterations of association in the phenomena of delirium. Herein there lies also the importance of studying the condition of the insane for preventing, arresting or counteracting, the occurrence of unwholesome ideation, both by moral means and the early restoration of normal physiological conditions, before the influence of habit contributes to the continuance and fixing of morbid practice. In the return of ideas to consciousness the laws of association are modified by other principles, and the manifestation of their influence is sufficiently obvious and "objective," to the clinician, to justify his

*Nervous Diseases, p. 50, et seq.

study of them as determining the processes of the psychoses which he has to observe. There is the ordinary spontaneous flow of ideas, primarily subject to the law of habit, which has joined to it the elements that share in determining the succession of ideas. Omitting speculation as to the laws of continuity, contrast and similarity, as modifying the train of ideas in consciousness, their spontaneous flow may be regarded as having precise physiological concomitants in neural activities which have like associations. To empirical observation the law of association in the train of memory presentations is modified by such principles as congruity with the emotional mood of the moment, habit, interest and spontaneity; also, besides these, by the recency and vividness of the first impression. The determining effect of these factors upon the train of thought is subjectively recognized by the observer, and the external manifestations of these processes can be objectively observed in others. Under such influences variations from the strict following of the previous habitual order of succession are accounted for, and the order of the associations is continually being changed, rearranged, made over into new objects, or fixed by practice and habit.* These processes of the association of ideas may be subjected to experimental study, and the researches to determine the time required to perform acts of association are well known, and lead in the direction of a better understanding of cerebral physiology. Memory is very sensitive to changes in physical condition, as Galton's experiments have shown; tests may be applied experimentally, and observations made of memory to determine the existence of cerebral fatigue. The pertinency of this discussion will become more apparent when it comes to the application of the principles involved in these laws of habit and association to the study of their operation in disordered conditions of the mental mechanism. These conceptions of the laws governing the mechanism when it is put in use, may themselves be held hypothetically, to be tested by the clinical student in his observations of psycho-pathological phenomena; and the foregoing statement, meagre as it is, of the fundamental processes of ideation, may be taken as indicating the nature of the basis upon which such observations are to be made.

Another question now arises of the greatest importance to the alienist in his need of having some notion of the phenomena of control which are commonly exhibited in these processes.

*Cf. James, op. cit. Vol. I, pp. 566-582. Burnham, loc. cit., 576-582.

The argument from the analysis of the spontaneous flow of ideas applies with the greatest interest to voluntary thinking and reasoning; and the alienist witnessing the disastrous effects of the absence of normal control is forced to seek to know something of the nature and source of that power which it is his office to aid in restoring. He observes that while our usual thinking revolves about some point of general interest which determines the relevancy, and mainly the order, of the successive items in the passing train of ideas, there is also the modification of their train by the having of "an end in view," and by the action of the will in keeping to that end. But by the laws of cerebral physiology the spontaneous train of associations is continually being presented; voluntary effort has no power to evoke images as if seeing them before they are offered as presentations of memory,—it is a process of rejection and selection, and keeping the attention to the end in view, by which any given train of suggestion and association is started and kept in control. Reasoning is, in its simplest form, voluntary attention. Thus it is that voluntary attention may intensify ideas selected from the train; and by this power to decide the direction of the next associations, through the term which has thus been emphasized, there is the exercise of the will in determining the course of the thinking, and the act.* The alienist then, having accumulated a store of observations, and if he be permitted to adopt such a conception of psychical processes as a working hypothesis, finds in the views of Wundt, now widely held in regard to attention and apperception, a ready contribution to his needs. It is maintained that apperception as the primal form of voluntary activity is an essential characteristic of consciousness from the first, and that the will, in its function of active attention or apperception, directs the conscious train of ideas.† Thus in the search for that power of control over mental processes, which to the alienist becomes conspicuous by its absence, we are led at last back to the attention and through it to the initial activity of the will. Whatever of controversy there may be as to the supremacy of higher psychical activities, it must be admitted as a common clinical observation that these begin to be put in abeyance with the advent of accidental obstructions or derangement of function in an organ having the requisite instability as a normal quality. With the beginning

*Cf. James, op. cit. Vol. I, p. 502.
†Cf. Burnham, loc. cit., p. 613.

of failure of higher psychical control, the more mechanical laws of cerebration are brought more freely into play, and we come at last to the phenomenon of weakening attention as the index of the increasing sway of spontaneity of ideas along the paths of habit and association. Fatigue of the power of voluntary attention, which goes along with cerebral fatigue, is equivalent to the beginning of the failure of control.

Thus comes out the importance of the study of the law of habit, which, with its elements of use and practice, is fundamental to that of association,—the potent elementary law of neural habit. Not only does this lead to the subject of attention, but the place and office of the attention in mental processes is shown, as is also the great significance of its altered manifestations in all stages of nervous weakness. Attention is to be studied as the medium of the manifestation of control over mental processes, and the alienist constantly observes the absence of this control when voluntary attention is absent. No study of the phenomena of use in the mental and bodily mechanism can be adequate without a large consideration of the laws of habit and association, and the relations of these to apperceiving and controlling voluntary attention. These are in turn fundamental to the study of clinical manifestations of mental symptoms in general.

Inhibition.

The complex manifestations of the normal organism having been analyzed as representing the elementary parts of a mechanism whose coördinated activities work together for definite purposes, and these manifestations being accepted as physiological, there are shown to be certain laws that govern the operations of the mechanism when it is put into action. It is also evident that these activities do not go on indefinitely when once excited by stimulation of the organic mechanism, but are held in check by a function of control which is itself regulated. The phenomena of control are manifestly physiological, whether pertaining to activities wholly involuntary and unknown to consciousness,—or those that can be in part controlled and of which the mind is conscious,—or those whose manifestations appear to be entirely mental and within the field of consciousness, but having, by fair inference, a physiological basis. The observation and study of these phenomena of control are of the highest importance to the alienist, as to every clinician, but for the present purpose it is only intended to note the fact of

the constant working of these inhibitory influences, and to recognize them as physiological manifestations of nervous energy, without discussing the question of the localization of specific inhibitory centres.

It is well known that the principle of inhibition finds a most specific manifestation in such an example as the special and limited cardiac inhibitory mechanism, where we have apparently to deal with nerve fibres whose exclusive function it is to convey impulses that inhibit the action of the heart. In like manner reflex actions in general may be totally or partially arrested or hindered by having the generation of afferent impulses, in the special centres engaged in the nervous reflex processes, interfered with by afferent impulses proceeding from stimulation of other centres. There is reason to think that afferent impulses passing along the same nerves may, according to circumstances, either inhibit or augment the activity of the centres in question; thus inhibitory impulses are commonly spoken of as occurring apart from specific inhibitory fibres. Actions or processes which may be regarded as inhibitory play an important part in the whole work of the central nervous system; "in all probability many of the phenomena of nervous life are the outcome of a contest between what we may call inhibitory and exciting or augmenting forces." But the analogy of the special mechanism for cardiac inhibition may not be carried too far; and the explanation of its action should rather be sought "by reference to the inhibitory phenomena of the central nervous system than to attempt to explain the latter by the little that is known of the former." That the brain habitually exercises restraining influences on reflex activities may be accepted as a fact, though how effected it is impossible to clearly state.*

In the further study of reflex actions, when subjected to experimental tests, the phenomena of interference and reinforcement by mental activities become manifest, and the definite influence of expectation and attention upon these processes is demonstrated. Pursuing the inquiry into the analysis of concomitant mental phenomena, and keeping to the physiological point of view, effects that may be broadly regarded as inhibitory are presented; and it is seen that a specific action of the brain, in an effort of the will, may inhibit or reinforce a specific reflex action, and the emotions have a wide and powerful influence. Thus the phenomena of

*Foster, Physiology, 5th Eng. Ed., 1890, pp. 914-918.

control, as manifestations of a physiological principle, show that this prevails alike in the activities of mind and body. The careful clinical observation and valuation of the "processes of the psychoses," as divergencies from normal activities, lead us logically and unavoidably through the study of the laws of habit and association to the manifestations of the higher power of control as it appears in the potent influence of the will acting through voluntary attention and apperception.* It is the impairment of this higher inhibitory power, manifested through the changes in the power of attention, that is so constant a phenomenon in mental disorders; the abatement of its regulating and guiding control in the coördinations of mental activities, leaves them in equal degree to the spontaneous, reflex, and often greatly disordered and tumultuous, action that constitutes psychical disturbance and insanity.

The Energy of Muscle and Nerve.

The phenomena attending the use of the normal mechanism, with those of the regulation and control of its activities, are subject to the important consideration of the preparation of the organism, and maintaining its condition, for its work. The mechanism being constructed and ready for use, some power must be generated in it to make it "go." A muscular contraction is in some way or other the result of a chemical change; this is an explosive decomposition of certain parts of the muscle substance, the energy latent in it being set free and expended in the mechanical work. There are resultant chemical products of the explosion, and the setting free of heat, as well as specific muscular energy; and the correlative of this expenditure of energy is the process of nutrition and repair. There is little known of the nature of the chemical changes; but while there is consumption of oxygen, and the muscular metabolism yields products of oxidation, it is an important fact that "the contraction is not the outcome of a direct oxidation, but the splitting up, or explosive decomposition, of some complex substance or substances."† These changes indicate the nature of the processes of repair by nutrition and the building up of complex molecular substances, and how the normal irritability of muscle substance is maintained, with its susceptibility to stimulation.

*See Sully, Art. The Psycho-Physical Process in Attention, Brain, Vol. XIII, p. 145; Ribot, Psychology of the Attention.

†Cf. Foster, op. cit., pp. 151-152.

While a muscular contraction must be considered as essentially a chemical process, and there are some attendant electrical phenomena, nervous action presents reverse conditions; the electrical phenomena of nerves are prominent, while little can be learned of their chemical changes, which are naturally very slight in consideration of the small amount of actual energy set free in them.* The apparent absence of chemical changes as the antecedents of the passage of a nervous impulse is consistent with the indications of later researches as to the nature of nerve-force, and the theory that it is transmitted by some sort of a molecular vibration after the manner of light or electricity, not associated with the liberation of potential energy, and without loss of normal irritability as a manifestation of fatigue.† In regard to the central nervous organs, however, it is found "that their irritability is closely dependent on an adequate supply of oxygen, and we may infer from this that in nervous as in muscular substance a metabolism, of in the main an oxidative character, is the real cause of the development of energy."‡ The low rate of expenditure of nerve-force would indicate, therefore, the need of longer processes of experimentation to test the causation of fatigue by transmission of impulses through nerve-fibres.

A physiological basis is furnished by such data as the foregoing for the conception of the principle of the storage and discharge of energy of muscle and nerve. This accords with the biological theory that all function is due to chemical changes taking place within the organism, and that the functional activity of a specialized tissue depends primarily upon these changes in its individual cells. The fundamental idea is that, in the resting state, the cell elaborates highly complex compounds, and that these break down to yield the energy by which the cell does its work. These processes having been demonstrated in certain gland cells, similar methods were applied by Hodge to the study of nerve cells by electrically stimulating ganglion cells and observing the changes due to functional activity that can be seen by the aid of the microscope.§

The unique feature of these experiments was that corresponding spinal root ganglia of the same animal were compared by being

*Op. Cit., p. 154.

†Bowditch, Jour. of Phys. Vol. 6, p. 133. Also, Arch. f. Physiol., 1890, pp. 505-508.

‡Foster, op. cit., p. 154.

§Am. Jour. of Psychol. May, 1888, May, 1889, and Feb., 1891.

subjected to identical treatment in passing from the animal to the slide, with the only point of difference that the one had its nerve stimulated for a longer or shorter time, while the other was not stimulated. The changes demonstrated were a marked shrinkage of the cells, particularly of the nuclei, which lost forty per cent. of their bulk after stimulation for seven hours; the cells themselves, though decreased but little in size, showed extreme vacuolation in the cell protoplasm; and the nuclei of the cell capsule shrank to a noticeable degree. The change in the cells was found to be generally in proportion to the duration of the work; and the experiments further showed the fact that in a subsequent resting state spinal ganglion cells of kittens do recover from the effects of electrically stimulating the nerve going to them, and that the recovery is a slow process. There were other results of great interest, but that of present importance was the proof of the histological changes of breaking down and building up of cell contents as accompaniments of the physiological discharge and re-storage of energy.

Muscular movement is the working of the mechanism of expression that represents activity of central cells. The differentiation by experimental tests between the effects of exercise of the muscles and the central nervous system is a difficult problem for the physiologist. The studies of the effect of fatigue on the muscles of man, by Mosso, Maggiora,* Lombard† and others, demonstrate the loss of power, by exercise, in the central as well as the peripheral mechanism, and that each may weary independently of the other. The general principle of discharge and restoration of energy is common to both elements, as is the principle of regulation and control of their activities, already discussed as presenting the phenomena of inhibition. The clinical observer may study these phenomena from the stand-point of the physiologist; in fact he must see the intimate connection between the manifestations of inhibitory influence in the mechanism and the processes involving the "discharge of energy," as shown in the regular control of that discharge, however impossible it may be to explain their nature. The elaboration of the hypotheses based upon the theory of evolution and the part played by inhibition in the organism, which

*Mosso, Archiv. f. Anat. u. Physiol., 1890, p. 89. Maggiora, Ibid, p. 191. See review of both articles, Am. Jour. Psychol., Vol. III, pp. 377-381.

†Am. Jour. Psychol. Ibid, p. 24. See also Bancroft, "Automatic Muscular Movements Among the Insane," Ibid, p. 457.

is "an apparatus for the storage and expenditure of nerve-force," as they are set forth by Hughlings Jackson and Mercier, are of the greatest interest, but the present purpose is to keep as closely as possible to the demonstrable facts of physiology and clinical observation. Enough has been said here of these most difficult problems of physiology and psychology to show the alienist's absolute need of "tireless observation" in the study of the phenomena of use, and of the impelling forces of the mechanism.

Fatigue of the Normal Mechanism.

The mechanism of mind and body may be perfect in all its elementary parts, be put into action subject to certain laws that regulate its activities under due control, and have an indwelling motive force; then the alienist must take account, in his observations, of all these factors as having each its part in the production of the complex manifestations of functions and symptoms. There remains another important factor, fatigue, already indicated in the principle of the storage and expenditure of energy. The organic mechanism will not go on forever, but will "run down" if, when put in use, it is not given intervals of time for rest, sleep and removal of waste products, and nutrition for repair. When it is put into continuous use, within the normal limits just indicated, there is developed the operation of the general law of physiological use, which is practically a summation of the important fundamental laws that form the chief subject of this chapter. Starting with the primary law of habit as the functional disposition to repeat organic processes, and as developed by use and practice, and adding the corollaries of this law found in the processes of association, inhibition, and the effects of muscle and nerve activity, it is seen that all come together under the law of physiological use, viz: that normal use develops functional activity and strengthens power, while disuse weakens function. Even the power of control, in its superior psychical form, is thus educated and strengthened, or weakened and lost. But besides the effects of use and disuse, there are those of overuse. The discrimination of these, each group from the others, as resulting from the activity of a primarily normal organism, is the first practical aim of all these studies.

The effects of use, within normal limits, are first to be considered; in the natural order, expenditure of energy of muscle and nerve leads to fatigue, with following restoration of energy by rest and

nutrition. A wholesome degree of fatigue is normally attendant upon physiological use, through increased blood-supply and reaction favorable to nutrition; this may be characterized as normal fatigue in contradistinction to the more pronounced effects which constitute exhaustion, or pathological fatigue.

The phenomena of normal fatigue of both mind and body, therefore, are now the first presented manifestations for observation; they constitute in their turn the relatively physiological standard upon which the valuation of pathological divergencies from them is to be made. Beginning with the muscular mechanism, and turning to the three orders of experiments mentioned in the first chapter, it can be shown that the "nerve-muscle machine," if subjected to prolonged stimulation, yields lessening reactions until it ceases to respond. If allowed to rest under proper conditions to maintain vitality, its power to react will be restored, and prolonged stimulation will again cause it to trace the "curve of fatigue." The restorative influence of rest, in muscles and nerves without the body, "may be explained by supposing that during repose, either the internal changes of the tissue manufacture new explosive material out of the comparatively raw material already present in the fibres; or the directly hurtful product of the act of contraction undergoes changes by which they are converted into comparatively inert bodies."* The "curve of fatigue" is probably in this instance solely due to the exhaustion of the muscle. Like results are gained in the other two orders of experiments including the nervous centres in the cord and brain, showing like phenomena of fatigue attendant upon the exercise of nerve-cells and muscles. It may be carried to the degree of their inability to respond to stimulation, showing also sensory as well as motor fatigue and exhaustion. The natural fatigue or exhaustion, and diminution of irritability, in muscles and nerves within the body, may be modified by certain general influences, the most important being severance from the central nervous system, and variations in temperature, in blood-supply, and in functional activity. It is shown that the products of contraction are exhausting in their effects upon muscles; but a stream of fresh blood, for example, may exert a restorative influence, not only by quickening the internal changes of the tissue, but by carrying off the immediate waste products, while at the same time it brings new raw material. The difficulty of distinguishing the manifestations of fatigue in the central

*Foster, op. cit., pp. 149-150.

nervous system and the muscular apparatus has already been referred to, and the intimate relationship between their fundamental activities is well shown by Lombard's article, to which reference has been made.* Aside from the changes due to muscular exercise, causing variations in the action of the peripheral elements of the mechanism, and yielding the phenomena of fatigue, there appears to be demonstrable evidence of like variations in the nervous centres, not dependent on changes in the strength of the will, and indicating its staying power as superior to that of the subordinate mechanisms. This is in the direction of physiological proof of maintenance of the higher power of control in ordinary conditions of peripheral and central fatigue, perhaps. Concerning the loss and recovery of voluntary control of muscular action, indications also appear that, in the more central parts above referred to, there are, according to Lombard, alterations which take place in some of the mechanisms between the areas of the brain originating the will impulse and the centrifugal nerves, and that, in respect to certain peripheral phenomena of periodicity or irregularity, the seat of the changes which produce them "is different for each of the muscles, and that the change occurs in the central mechanisms which control the different muscles independently."

The experiments of Maggiora corroborated other observations, showing that fatigue, produced by long-continued muscular work, affects other muscles besides those which were engaged in the work and lessens their power. The rapid wearying of these muscles, with electrical as well as voluntary stimuli, shows "that it is the peripheral, as well as perhaps the central mechanisms engaged in the voluntary act which are affected by the general fatigue." In one group of Mosso's experiments it was shown that one can study the fatigue of the nervous centres. Having found that the central nervous mechanisms fatigue during muscular work, he sought the effect of central fatigue on the force of voluntary muscular contractions. In a man subjected to severe mental work it was found that the muscles, which had been inactive, were weakened by it. The result of this experiment was regarded as a strong argument in favor of the idea that the weakness which results from mental work is due to a poisonous material produced by chemical changes in the brain; this entering the circulation acts upon the muscles and weakens them.

The physiological explanation of the conditions following exer-

*Am. Jour. of Psychol., Vol. III, p. 24.

cise shows that the actual diminution of energy by discharge is a factor which appears to have joined to it a "toxic" element in the products of the changes in the tissues caused by functional activity. The blood being the carrier in the removal of these waste products of metabolism, and becoming charged with them beyond normal limits, there may be local areas of toxic influence hindering or inhibiting the function of distinct peripheral or central mechanisms.

According to Klebs,* referring to the processes of degeneration, there is a diminution of the functional activity of a part and a change of its composition; the part lives, and retains everywhere its external form, but its capabilities are diminished. The most essential characteristic of all degenerations is the deposit in the tissue of substances derived from nutritive changes going on in the part. In other words, they are disturbances of assimilation which are caused either by the deposition of non-assimilable material, or by a diminution of the power of assimilation of the tissue. This material can evidently either originate in the part itself, or be brought to it from without. Referring to the processes of pure, real atrophy, Klebs says,† we have to do with two fundamentally different sorts of disturbances of nutrition, according as the necessary food is withheld from the parts, or the power to assimilate it is lessened. In many processes of atrophy of the central portion of the nervous system the cause of the atrophy should be sought much oftener than it is in circulatory disturbances, inasmuch as their frequency and significance in the organ depend on the easy disturbance of the nervous elements in consequence of the withdrawal of nutrition. Here, apparently, even simple anæmias, if they last a certain length of time, can bring about great disturbances, especially of the psychical functions; but further investigation is necessary to consider this proposition as positively proved, although it is generally accepted. Probably material changes in the composition of the blood aid in these cases in affording the local anaemia in certain areas, especially in the fore-brain, the time necessary for bringing about the process of atrophy. In favor of this is the connection of many acute mental disturbances with infectious diseases, and their occurrence after typhus, puerperal fever, and acute articular rheumatism. Klebs also notes the insufficiency of clinical investigation in the frequency with which valvular changes are overlooked in autopsies of mental cases, and thinks that blood

* Die Allg. Pathol., II, p. 54.

† Op. cit., pp. 281, 285, 286.

vessels are occluded by thrombotic masses. These pathological considerations indicate the effects that may follow from such initial causes as prolonged cerebral fatigue, toxic influences, lessened power of assimilation, etc., in the easily disturbed nervous elements.

Proof is still lacking, it is true, of what is generally accepted as probable in regard to the changes in the central nervous system as the physiological accompaniments of psychical processes. Enough is known, however, of the relation of metabolic processes in general to the setting free of energy to make it imperative that any study of fatigue, in central as well as in peripheral mechanisms, should take into account the possible presence of toxic products of functional activity as factors in the phenomena of fatigue and exhaustion. The revelations of bacteriology are shedding new light upon the action of the products of decomposition within the body,—both those of infectious origin, and the noxious alkaloids of "auto-poisoning." Thus it comes to be a part of the clinical problem in mental disorders to consider whether the over-worked brain may not only have its nutrition, and functional activity, diminished by imperfect removal of waste products, but that further poisoning of its cells and fibres may come from toxic substances in the circulation, due to imperfect digestion and assimilation.

The consciousness of a sense of fatigue, which is probably of a complex origin, follows prolonged exertion. The normal muscular sense, and the large inflow of the lesser organic sensations, are also modified, no doubt, by the results of changes in the centres for the muscular action and those engaged in the production of voluntary impulses. In addition to the sensations due to the changes in muscle substance and passing inward to the sensorium, there is the vast flow of organic sensations from all peripheral activities having sensory nerve connections with the central system; these sensations, being too slight in intensity to pass over the threshold of consciousness, constitute, nevertheless, the basis of the undefinable sense of well-being or ill-being, and of restfulness or fatigue, with which all are familiar. Limiting the present consideration of these sensations to those that can be strictly classed with the results of the discharge of energy in all forms of nervous or muscular activity, and that can be regarded as due to fatigue, there will be left for study, in the proper place, the morbid sensations due to the local effects of disordered functions such as those of visceral

organs, as well as the toxic influences engendered by them which enter the general circulation.

Proceeding now to what appear to be strictly psychical manifestations of normal fatigue, even as daily commonplace experiences, these are of the highest significance to the alienist. The general cause of tire of which everyone is sometimes conscious, may be analyzed according to the elementary parts of the mechanism that have been specially exercised. The physician may note the expression that is given to the feeling of muscular fatigue, the sensations being assigned to the apparent peripheral sources, while those arising from the central activities that have been undergoing exercise are not discriminated, or rather the sensations due to central fatigue are perceived as having a peripheral source in the motor part of the apparatus. General mental fatigue is shown by a lessening of the activity of consciousness tending to normal sleep. The most striking and constant phenomena of normal fatigue are those indicating tire of the power of voluntary attention. The inability to concentrate the attention after a period of prolonged activity, particularly if it be mental, is a common experience,—the restoration of normal control after rest, sleep, and nutrition, is equally well known. The abatement of the higher power of voluntary control of mental activity is a distinct manifestation of fatigue; this may reach the degree of exhaustion, and in morbid conditions, which are in part doubtless due to toxic influences, the condition has sometimes been characterized as "inhibitory insanity." In these conditions, what seems to be increase of power, in the processes usually held in check by the higher inhibition, is simply evidence that this is weakened or lost; it is an extreme manifestation of the spontaneous flow of ideas in conditions of normal fatigue of the power of attention. In psycho-physic experiments the influence of fatigue in the increase of reaction-time is commonly noticed. The slowing of these processes in general is evidence of the physiological expenditure of energy through functional activity. The altered activity of memory, as a special index of cerebral fatigue, is subject to experimental tests, as already noted in the reference to Galton's experiments. The association processes are less under control, and there is lessened power to recall ideas, with the weakened attention and dulled perceptions. The logical apparatus works less effectively. The lowering of emotional tone, the lessening of natural vivacity and a quietude of feeling, and the like,

and the abatement of power to control the motor mechanism, are indications of normal tire.

The lessons of present significance with respect to fatigue of the mental and bodily mechanism are that fatigue is in direct relation to the amount and duration of the stimulation and exertion; that there are corresponding processes of expenditure of nervous energy and histological changes in the nerve-cells, some of which are demonstrable, and that restoration of all the normal conditions naturally follows rest and nutrition; and that there are distinct mental phenomena of fatigue which are in direct relation to concomitant physiological conditions in the organism.

This view of the organic mechanism takes into account ordinary processes that prominently present themselves to the clinical observer in every case; in normal fatigue appear the effects of the self-wrought limitations to power of action. The study of these processes is fundamental to the understanding of mental disorders, for the reason that here is the genesis of the conditions resulting from carrying some of the normal processes too far, or the annulment of others that have a conservative and reparative influence. The mechanism, when subjected to stress, will show signs of it; the group of symptoms will depend upon the elementary activity, or the combination of them, that is involved.

It is seen that disorder may begin anywhere in the mechanism,—either in the central or peripheral parts, but soon extends itself to other activities in great complexity of combinations. In normal states of functional activity, what is pure fatigue from expenditure of energy, and what is fatiguing in the toxic accompaniments of exercise, may not be discriminated without great difficulty; but in morbid and disordered conditions it is evident that the manifestations may be due more largely to excess of pure fatigue in some cases, and of toxic influences in others. For example, in the range of cases of melancholia, with intellectual integrity largely remaining, in some the symptoms of pure nervous or cerebral exhaustion predominate with little of peripheral fatigue, while in others all activity is apparently in abeyance because the motor mechanism is as if curarized, causing a condition simulating psychical stupor.

Now as we have conceived the organic mechanism as being made up of elementary parts, and from a physiological point of view that each of these parts may be studied as represented by its "activity"; and having studied the manifestations of the normal mechanism when put in use, it must be at once observed that cer-

tain of its processes make themselves prominent. These demand a physiological valuation as the basis of the observations that are necessarily made in every clinical study. The attempt has only been made here to characterize these activities with sufficient explanation to indicate their nature. The following conclusions may be drawn from this study of the normal mechanism:—

1. The first obvious fact presented is that every new mode of action of the mechanism gives it a functional disposition to repeat the organic process. This under the law of use and practice constitutes the law of habit, which prevails in all the activities of the mechanism, bodily and mental, and is shown to have a physiological basis. It is seen that this law works with equal force in fixing dispositions to repeat disordered actions.

2. The extension of the law of habit shows that it is fundamental to the law of association which is apparent in all the activities and is of special importance in the mental sphere. The study of its processes devolops the fact of there being a regulating and controlling influence which may be broadly designated as inhibition, and that the higher inhibitory control, in the ideational processes, manifests itself through the attention, which is closely related to the motor apparatus; in its natural form it is spontaneous or reflex and, in the highest development of inhibitory power, is under the control of the will and acts as voluntary attention. It is seen that among the earliest indications of fatigue and exhaustion in mental activities is weakening of the inhibitory and directing power of voluntary attention, and that this has an important significance in mental disorder.

3. The mechanism being thus constituted and subject to certain laws that regulate its activity under due control, must have an indwelling motive force. The energy of muscle and nerve comes into play under the physiological law of storage and expenditure according to the fundamental law of all cell activity. Rest, sleep and nutrition, contribute to the building up of complex cell compounds, subject to physical and chemical laws; and the discharge of energy is accompanied by destructive chemical changes that yield toxic waste products. These processes probably occur in both peripheral and central mechanisms.

4. The mechanism, when put into continuous use under the foregoing conditions, does not go on indefinitely upon being stimulated into activity, but manifests the phenomena of fatigue when subjected to prolonged exercise. The results of such use within normal limits may be regarded as normal fatigue; this is

wholesome, and power is gained in accordance with the law of physiological use. But there are harmful results from disuse and overuse constituting conditions of pathological fatigue.

5. Normal use with normal fatigue of both peripheral and central mechanisms are inseparably accompanied by chemical changes in the parts exercised, and toxic products are formed in the tissues. The effects of fatigue can only be studied as including the direct results of the discharge of energy plus the toxic influence of the products of cell activity, which emphasize and produce, in part, the fatigue and exhaustion; these elements exist in varying proportions and under varying conditions. It is seen that, as between peripheral and central mechanisms, fatigue in one will produce its phenomena in the other; and that the blood must be studied as the carrier not only of nutritive material but of toxic elements from one part to another.

6. In the normal mechanism, under normal use, there is maintained the balance of waste and repair; and a healthy activity is sustained by the removal of autogenous waste products and the supply of nutritive material under due conditions of rest and sleep.

7. In studying the processes that produce the phenomena of fatigue and the graver degree of exhaustion, four factors must always be kept in mind as possibly in operation. Two of them are positive, viz:—the direct results of discharge of specific cell energy, and the reinforcing effect of the toxic products of tissue activity. The other two are negative, viz:—the withholding of nutritive material in the circulating medium, and the presence of toxic material in it that lessens the power of assimilation in the tissues.

8. The mental mechanism presents a definite series of elements for ordinary clinical observation as to divergencies from the normal in the functions of its activities. These are subject to examination in due order, as in their sequence as elements of reaction-time; and they may be tested to some extent, experimentally, by psycho-physic methods. In an ordinary clinical examination they may be observed to show marked differences from their normal reactions, presenting different symptom-groups under different bodily conditions. The phenomena of habit, association and control, appear; and there are definite psychical manifestations of fatigue, independent of, or correlative to, conditions of fatigue in the peripheral mechanisms. It may be possible also to discriminate between the relative influence of pure fatigue from discharge of energy, and the effect of toxic substances, in the causation of conditions of fatigue and exhaustion and concomitant disorder of psychical processes.

Next in order is the consideration of the effects of disuse and overuse in the mechanism—pathological fatigue or nervous exhaustion, with special reference to the significance of the accompanying mental symptoms.

CRIME AND RESPONSIBILITY.*

BY DANIEL CLARK, M. D.,
Medical Superintendent of the Asylum for the Insane, Toronto, Ont.

Crime has been defined to be a violation of human law or the law of the state; sin, a violation of the Divine law or the precepts of religion; vice is opposite to virtue, and is an offence against morality, or a violation of the moral law. Crime is especially the object of jurisprudence; vice, of ethics; and sin, of theology.

Responsibility is the capacity of discharging an obligation, or ability to be accountable for actions.

We must bear these definitions in mind in discussing the relation of crime to responsibility. Some classes of humanity must be held to be exempt from responsibility. 1st, The child of immature age. 2d, The idiot with arrested brain-growth and dwarfed mental development. 3d, The imbecile in whom the mental powers exist but in a feeble and circumscribed condition. 4th, Various classes of the insane. 5th, The epileptic (not insane,) when fits are coming on or leaving. 6th, The dipsomaniacal in the frenzy of drunkenness.

The two last classes are held in law to be responsible, whether conscious of their acts and the quality of them or not. Law says it can not distinguish between the knowing act of an epileptic and that done unconsciously. It also says the drinking maniac is in that condition because of his voluntary act of drinking; hence his accountability. The law holds that all insane are irresponsible, but bases its definition of insanity on the capacity of a person to know the distinction between right and wrong in the abstract. This fulcrum mind-test was laid down by the English judges in the McNaughton case (1843.) In carrying out the law, judges never give a personal opinion. To them the accepted *lex scripta* is gospel truth, as far as the verdict and execution of law are concerned. They do not question the received decisions, authorities and precedents of their legal ancestry. To them, it is what the law commands, which is supposed to be founded on justice in its fundamental principles. Were a judge to act on experience and

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thereby be able to alter at will his instructions to the jury against what had been decided by courts no more competent than himself, he would fear for the stability of the judiciary. We need no other example in this particular than that already mentioned. To make a knowledge of right and wrong the crucial test of sanity has wrought untold mischief in the administration of law. In fact, it is now acknowledged by eminent jurists, such as Sir James Fitzjames Stephens, in his works on "Criminal Law," and by Lord Chief Justice Cockburn, in his opinions given before a parliamentary committee, that such a rule of law is misleading and faulty. The consequence has been that in recent works on medical jurisprudence a new element has been introduced into the legal definition. The ethical test is not given up, but there is added such a clause as, "the law allows that a man who, by reason of mental disease, is prevented from controlling his own conduct, is not responsible for what he does." (*Stephens' Relation of Madness to Crime.*) It is added, "No doubt there are cases in which madness interferes with the power of self-control, and so leaves the sufferer at the mercy of any temptation to which he may be exposed; and if this can be shown to be the case, I think the sufferer ought to be excused." (*Stephens.*)

In 1874, when Russell Gurney's bill was before the English parliament, a clause embodying the recognized fact that the moral test was very fallacious, and that a statement should be introduced accepting as proof of unsoundness of mind or lack of responsibility such brain disease as destroyed self-control. As might have been expected, the law officers of the Crown recommended its rejection, and it was shelved accordingly. When this proposed amendment was before the committee of the House, Lord Chief Justice Cockburn cordially accepted this amendment and significantly said: "The pathology of disease abundantly establishes there are forms of mental disease in which, though the patient is quite aware he is about to do wrong, the will becomes overpowered by the force of irresistible impulse. So the power of self-control, when destroyed or suspended by mental disease, becomes, I think, an essential element in irresponsibility." At the same time, Sir James Stephens suggested that in such cases a jury should be allowed to bring in one of three verdicts, viz: 1st, Guilty. 2d, Guilty, but the power of self-control was diminished by insanity. 3d, Not guilty on the ground of insanity.

These were only the opinions of distinguished men, and not

being statutory, the old law is not changed. The judicial instructions to juries in rendering verdicts remain as before, and even Chief Justice Cockburn was obliged to charge juries according to the written law, although he knew how inconsistent with physical fact the law is. He was obliged to abide by the traditions of the legal fathers. Hanging, under the old definition, is still going on, in spite of the flood of knowledge which has been poured upon the subject by psychologists during the last forty-seven years, since the moral test formula became law. The more enlightened opinions of eminent jurists must ultimately have weight in the British Empire and in the United States, and will tend to affect legislation in the right direction. This is notably the case in the United States. Newly enacted penal codes in some of the States have, in addition to the moral definition of 1843, some form of recognition of loss of self-control by virtue of disease.

From these general statements it will be seen how widely law and medicine differ on this radical and all-important matter. The medical test for insanity is based on the presence of physical disease and its abnormal results on conduct: the legal test is metaphysical and theoretical. The medical diagnosis is based on pathology and experience: the legal ignores any physical condition which does not affect the moral attributes. The legal cares nothing for impulse, loss of will power, or sudden change of character and conduct without motive or from childish incentives: medicine takes in the whole man in all his multifarious interests. The former tests by the ambiguous notion of *right* and *wrong*, but the latter by the *will not* or *can not* of each individual. The one deals with an abstract idea: the other in what is found practically true every day in the wards of any lunatic asylum. Law adheres to tradition and the fiat of statutes: medicine points to the facts of clinical experience and practical knowledge. Legal *dicta* permit a counsel and judge to instruct a jury both as to law and facts, both as to responsibility and insanity; but a medical witness—whatever his experience and skill may be—is not allowed to relate them to the jury, although they may be of intrinsic value in teaching and enlightening those in whose verdict lies the destiny of a prisoner. The man, of all others, who should know whereof he asserts, must be "a dumb dog," while the man whose experience may be of the most crude kind is legally allowed to appeal, to instruct and direct a jury in the most abstruse of all

medico-legal subjects. The writer, not long since, heard at a state trial a well known Canadian barrister and Queen's counsel instruct a jury that any ordinary man was as able to detect any form of insanity as could an expert. The absurdity of such a statement might be seen any day by turning loose into the wards of a strange asylum this counsel, a jury, and asylum medical officers, to select the sane from the insane as they might be presented. A short experience in this discriminating work might not convince, but it would certainly give ground for legal reflection and possibly prevent a repetition of such a silly statement, unless "our learned friend" had passed the age of conversion. Perhaps he should not be blamed too much, as his text-books make the same assertion. It would be rank heresy for him to fly in the face of accepted authority, even were he convinced of its absurdity.

In reading the history of jurisprudence, it is satisfactory to observe that the broad minds of the great jurists and legislators are groping towards the light. Let us take the question under discussion, for example, and see its evolution.

During last century, the definition laid down by Lord Coke was accepted as law. In this it was held that to be insane meant to be totally devoid of memory and understanding when an insane act was committed. If this negative condition did not exist, such were responsible. It need scarcely be said to-day that no insanity ever existed to which this definition would apply in its entirety.

In the beginning of this century it was held that insanity should be tested solely on the basis of the possession of delusions. Of course the absence of them would imply sanity, yet we know many insane have no delusions. This phase of legal thought was followed by the crucial test that any person who has the capacity "to know the *nature* and *quality* of the act he was doing" must be sane, and responsible. Many sane are quite capable of knowing as described. This moral test is absurd in itself. What right and wrong are in the abstract have not been determined. Law is one thing and ethics may be quite another. As one item of the curiosity of law penalty it may be noticed that at the beginning of this century more than 200 offences, from robbing hen-roosts to treason and murder, were punishable by death in the British Isles. In 1816, no less than 58 persons were under sentence of death for such offences, and one was a child under ten years of age, who could neither read nor write. As the years rolled by, it became evident that punishment and crime were

unequally associated, and law began to adopt a sliding scale in the administration of justice more in keeping with the quality of the crime. Any one who will take the trouble to wade through the evidence on which the verdicts of those days were based, will see it fared badly with the poor lunatics. The court suspended the insane, in many instances, instead of the judgment! The putting the life of the assumed insane in one scale and then placing these ever-changing conditions of law in the other, have been, are now, and apparently will be the means of putting many innocents to death. Definitions are mischievous when they bind down judges, juries, and legal evidence to certain lines of opinion, from which there is no deviation permitted. The result, so far, has been that the pathway of legal record in the past is full of lists of the victims of crude definitions and metaphysical subtleties. Cast-iron definitions have been the means of bespattering the pathway of history with the blood of these innocents.

The word *insanity* is a relative term, and means a disease. It is always a brain disease, with gradations of severity. As we cannot tell where the colors of the rainbow blend, nor can we point out where the steel grey of the dawn commenced, nor where the last glow departs of the closing day, neither can we define where sanity ceases and insanity begins. There is a border-land which lies in the shadows, and no one can penetrate it with a pencil of light. Reason passes into it, possibly unconsciously, or, it may be, with dread forebodings, and emerges from the ominous cloud into the positive region of mental alienation. The foe comes stealthily, but surely, and ties the captive to his chariot-wheel. There is at this stage no mistake as to the mind-trouble. It has assumed a definite form in its prominent features, which are modified by the personal characteristics of each individual: hence no general definition of insanity can ever be given. No two people are alike in any one particular, so mental manifestations differ. In judging the insane, the temperament, peculiarities, education, habits, surroundings and apparent motives must always be taken into account. Does the man act naturally? Is he himself? Is his unusual conduct brought about by anything but brain disease? We must measure all men by their own half-bushels, and not by an arbitrary standard of capacity. The ascending series of intelligence seen in the normal creation have a counterpart in insanity. If we take an intellectual general test and apply it to each class of the insane, we will find at the lowest

point the harmless dement in whom is little mental capacity beyond that found in the helpless child. Such have little vitality beyond organic life. At the other end of the series are the 'cute, clever, intelligent insane, who puzzle even experts in their most searching examinations. Among this higher class are found the insane over whom courts sit in judgment, and concerning whom juries give strange verdicts. The stupid, the boisterous maniac, and suicidal and religious melancholics, are easily known; but the clever possessor of delusions which he carefully hides, and which may be the mainspring of his general conduct, needs to be carefully examined, watched and studied before the most experienced can pronounce definite judgment and determine responsibility. These delusions may be of a harmless kind, and control or may not impel overt acts, or they may be mainsprings to urge to insane manifestations. Of course, we all have delusions of some kind, but the judgments of the sane give them proper value. The insane accept them as facts, not fancies. There is a large class of individuals between the feeble-minded and the normal section of the community, and *animalism* is the predominating feature of such beings. The intellect is developed to such a degree that they may be tolerable citzens as far as intelligence is concerned. They are, however, low in the scale, and are known to be such by even ordinary observers. The cunning, selfish instincts and impulses found in animals are strongly dominant in them. They set lightly on law or any of its restrictions so long as they can avoid detection. With such, it is not a question of morals, but of punishment. The sense of right and wrong is feebly developed, and the moral judgments are seldom exercised. Conscience is either not present, or, at best, weak and functionless, and gives little trouble. It is not an ethical nature blunted by repetitions of evil, but a faculty never brought to maturity. Such have been called "moral idiots." No crime, however dark and horrible, will cause them to lose a meal or a night's rest. Like brutes they live, and like brutes they die. If they have not much mental activity, they may be harmless in a community from sheer *inertia*, and are never heard of but as *ne'er-do-weels;* but if the brutal instincts goad on the intelligence, we have developed a low class of criminals for whom there is little hope. They crop up as the chronic vagrant, tramp, petty thief, burglar, or, in short, the inveterably depraved all-around character. The whole being is saturated with laziness and cupidity, through which a living can be procured at the expense of the honest workers of society.

The fact is, all intelligent creation is like a pyramid. The first section from the base represents the animal instincts of man and beast. The next section may represent the higher intelligence, not instinctive; it is much narrower in its scope. The section including the apex might typify the moral nature, and represents a much narrower and higher class of being. In humanity, the building up of our nature is in the following order from birth: 1st, Animal instincts. 2d, Intellectual powers. 3d, Moral conceptions. In any or all of these we may have arrested development. When all are possessed in a normal degree, the loss of each section of the prism is in the inverse order of building up. This is notably seen in the acquisition of depraved habits and in insanity.

Now, in the building up of this sympathetic whole from childhood to adult life, we may find the growth arrested at any of the stages. If development should be checked in any stage of youth, only the animal exists: hence the idiot and imbecile. If arrested in the progress of intellectual growth, we have feeble-mindedness and dwarfed knowledge. If atrophy takes place in the last section of building a full manhood, then have we intelligence, but no moral nature, or, at best, only the rudiments of one.

No amount of metaphysical subtlety can reason away the physical fact that our whole entity of body, intellect, will, affections, emotions and morals, are only manifestations of one organic whole, and are interdependent upon one another in many relations of this unity. The genesis of our conduct is largely dominated over and affected by their development, their relative power, and their controlling activity. The elements of our existence have in them the potentialities of the coming man. Habit, education, and favorable surroundings do direct these primary forces for good or evil, but they never can obliterate the characteristic features which make us distinct from one anothor. Our individuality is born with us, and goes with us to our graves. A very little change in the relation of our constituent element of character and of primal nature does alter very much individual peculiarities, just as a very little change in chemical elements brings about radical differences in material substances. The old landmarks, however, remain unchanged, and must, in the nature of things, so continue. No two physical forms or faces of humanity are alike; no two brains are alike; and no two minds are counterparts of one another, except in a generic sense. The primal elements are varied, and the growth of brain and mind is different in each

person. The immature brain of a child may be fully developed into the mature and complex brain of manhood, but the attempt to improve a partially grown brain, such as is seen in the feeble-minded, is well-nigh hopeless. The juvenile brain grows, and mentality with it, in a corresponding ratio, so that an equation might be made between the two. A brain has only a mental scope equal to the brain-capacity and power.

The child is judged according to its mental capacity, so ought the savage and the feeble-minded to be. It is not by years we should measure mind-power, but by the standard of the ordinary intelligence of the ordinary man. There are children wise beyond their years, and there are men with childish minds.

The brains of the lower forms of humanity and of the higher beasts come close together in structure and shape. The natures of both such men and beasts have much in common. Both have intelligence and reasoning power, but there is no evidence that they have a moral sense, or if so, it must be in a rudimentary degree. They have no contrition for acts. Punishment, not compunction, restrains them. The idiot has not even the animal intelligence. The imbecile is a step higher in the plane of instinct and knowing, but is little, if any, higher in these than a dog, elephant, or chimpanzee, and is held not to be accountable because of mental deprivations. The feeble-minded approach more nearly to the normal man, but are lacking in keenness of judgment, the conceptive faculty, and mental concentration. Such are either very childish and harmless, or show viciousness or many forms of depraved propensity. The criminal and accountable, in the next stage, manifest themselves in the nature, but at the zero of the scale. They have no keen appreciation of the rights of others. Many of them are children with grown bodies, just as we find in the habits, tastes and mental scope of the untutored savage. The immature brains of a child, a barbarian, and the weak-minded produce analogous mental phenomena. It is to be remembered that there can be no responsibility where there is no moral nature, and there can be no moral nature where there is little or no intellect. The necessity of a knowledge and appreciation of our relation to law and of the consequences flowing from its infraction may exist without responsibility. To simply know is one thing, but to be able to determine and set in action reasonable volitions is quite another.

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class, which can be placed between the feeble-minded and a fully-developed man. We find a large class of the community who have, in a low degree, judgment, discretion, common and moral sense. From this class comes the vicious and low criminal. Reference is not here made to those who become so by association, example, and habit, but to those who are congenitally weak in all the necessary attributes of a well-ordered humanity. They start life handicapped with low cunning, inordinate acquisitiveness, selfishness, cruelty, low mental powers, and lack of a moral sense. All of these deterrents are seen in a lower plane in the brute creation. To prey on the public, to do no work for a livelihood, to indulge in petty larceny, to revel in the mere performance of wickedness for the love of it, whether sensualistic or destructive —in short, to indulge in all depraved tastes and vices : never to know practically what is meant by the stings of conscience. A love of wrong-doing is an inborn and inbred condition in which they take delight. As a matter of fact, the responsibility of such is small, measured by any rule of ethics, and it is a serious matter to consider if such criminals should not be incarcerated for life when they become chronics. They should be made to earn an honest living, not merely as a penalty for crime, but as a charity towards the vicious, and as a protection to society against their ravages. Such ordinarily spend most of their time in prison because of repeated offences, and are let out of durance intermittently, only to prey on society, to educate others to follow their example, and to leave behind them a criminal progeny. The low criminal, by oft convictions and repeated imprisonments, becomes an incurable law-breaker, and should be treated as incorrigible. Experience shows they are such, and being so, have forfeited all right to liberty and personal consideration beyond kind treatment and forbearance, based on industrious habits and good conduct.

It is easily to be understood, then, that in this next upwards stratum is found the larger number of our ignorant, depraved, lazy, bestial criminals and insane. Their cunning will make them sham religion when it suits their purpose, their instability makes them yield readily to temptation, their *animalism* makes them the sport of their passions, their love of ease makes them indulge in the luxury of vagrancy or petty larceny, their low tastes make them victims of strong drink and the seekers of like associations, and their gregarious instincts cause them to form combinations

which threaten to disturb the foundations of society, and of necessity make them social pariahs.

In view of these facts, it is one of the great social problems of to-day to determine, in equity, how much conduct is influenced by natural and irresistible qualities, and how much is modified by immediate and proximate external causes and circumstances, or wherein our actions and modes of thought are influenced and directed by our natural aptitudes and propensities. As far as we can know these factors, they should be taken into account in estimating the culpability of guilt. Law is based on abstractions, and punishes absolutely according to act and not according to turpitude. The man who commits a homicide in the frenzy of drunkenness has no consideration shown to him in his sentence, yet culpability may depend largely on circumstances. In one case, the passion for drink may have come on from a vicious and acquired habit, therefore it is blameable; in another, it may be a dipsomania by reason of hereditary transmission, from which there may be no manumission. It is a heritage of uncontrollable impulse, which is intermittent in its invasion and departure. In both classes the penalty is identical, hence the injustice.

A forgery is committed by a man whose whole life record has been that of honesty and truthfulness, but who, by stress of financial pressure, has suddenly fallen from his high estate. The trend of his whole career has been in the direction of virtue and honest living, but with commercial disaster staring him in the face, he commits a felony, which he hopes to rectify before discovery. His whole moral nature revolts against the act, but his sensitive fear of men and of its effects on his family and himself is a motive too strong to resist.

Another man has a mean, grasping, selfish nature. He has been naturally so from childhood. He has cultivated all evil influences, and has sought environments calculated to encourage their growth and deepen their intensity. Because of these tendencies, natural and acquired, he forges and cheats simply to possess and increase his gains, based on the pure love of greed.

The act in both examples is the same, but in their comparative guilt they are far asunder. In the one, it is a sudden impulse to deviate from the well-beaten track of a life-long rectitude; in the other, it is the natural outcome of an ingrain vicious nature. The responsibility in both cases is scarcely to be compared, but the penalty is equal. The motives are not taken into account. In

fact, the man of heretofore good reputation is held to be the greatest culprit, although it was only an incident in his life, and in the other the outcome of a bad record.

In short, it may be said that:—

1st, The natural history of crime shows that brains of chronic criminals deviate from the normal type and approach those of the lower creation.

2d, That many such are as impotent to restrain themselves from crime as the insane.

3d, That immoral sense may be hidden from expediency by the cunning seen even in the brutes, until evoked by circumstances.

4th, No man can shake himself free from the physical surroundings in which he is encased.

5th, Crime is an ethical subject of study outside of its penal relations.

6th, Insanity and responsibility may coexist.

7th, Some insane can make competent wills, because rational.

8th, The monomaniac may be responsible should he do acts not in the line of his delusion, and which are not influenced thereby.

9th, Many insane are influenced in their conduct by hopes of reward or fear of punishment in the same way as the sane; the rudiments of free-will remain.

10th, Many insane have correct ideas in respect to right and wrong both in the abstract and concrete.

11th, Many insane have power to withstand being influenced even by their delusions. Therefore, irresponsibility and insanity do not always cover the same ground.

THE SO-CALLED MOTOR AREA OF THE CORTEX.*

BY EDWARD B. LANE, M. D.,
Assistant Physician at the Boston Lunatic Hospital, Boston, Mass.

Since rational methods of investigation have revealed to us any real knowledge of the functions of the cerebral cortex, it has been customary to speak of the motor and sensory regions of the brain or of the cortex. It was Hughlings-Jackson, I believe, who first named the "motor area," and to-day he is one of the strongest adherents of the view that a portion of the cortex has a purely motor function. The idea that the anterior part of the brain had a motor, and the posterior a sensory function is a very old one; indeed it dates back even to the time of Galen. This idea was confirmed by analogy after the brilliant work of Bell and others in the anatomy and physiology of the cord. With this strongly preconceived notion of the dual nature of the function of the nervous system the majority of investigators in the problem of cerebral physiology have gone to work. While by a few more or less protest has been made to an acceptation of this view, of a motor as well as sensory function of the cortex, the opponents of the motor theory seem to be yet in the minority both among physiologists and psychologists. Yet, within the last five years it seems to me that the two sides find more and more in common and the dispute is fast being reduced to a mere dispute in names. Those opposed to the view that consciousness could result from activity of motor cell, found their first weapon of attack in the muscular sense. Bain in England and Wundt in Germany in their works on psychology met the problem of the feeling of effort, of energy expended, in this way. We are conscious, they said, of an outgoing impulse; at the instant of innervation we are conscious of so much energy expended. For it was clear that this feeling is not an impression received along the channels of the classical five senses. Within a few weeks of each other, Bastian in England and Wm. James of Harvard published views opposed to Bain on this matter. Prof. James's now famous thesis entitled "The Feeling of Effort," almost if not quite completely overthrew Bain's hypothesis. Wundt in his later work has modified his view somewhat, taking

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a middle course admitting that the feeling of effort is largely sensory, but holds that there is a motor element in it. It is all but universally admitted that there is a muscular sense; the dispute to-day is merely what part the recorded muscular sense impressions play in consciousness and will, functions as we believe of the cerebral cortex. A most interesting discussion in the London Neurological Society was held after a paper by H. Charlton Bastian on the subject of the "Muscular Sense; its Nature and Cortical Localization." This was reported in full in *Brain* for April, 1887. This represented fairly, it is to be presumed, the position of English neurologists and physiologists on this question. Bastian stands almost alone in his position that there is no strictly motor function of the cortex; that all motor cells lie below the superficies of the brain; that the so-called motor region is as purely sensory as any part of the cortex. Bastian's term is "kinæsthetic," which term for its convenience I shall use in this paper. "Kinæsthetic" as used by Bastian includes more than what is meant by the muscular sense strictly. It means the sensation of movement, and includes usually tactile and joint sensations, all sensation whether from muscle, skin, ligaments, tendons, or joint surfaces that are the result of a muscular contraction and consequent movement. Yet it is probable that the muscular sense proper is the chief factor of the kinæsthetic sense. Opposed to Bastian most strenuously is Ferrier, who will not admit the cortical localization of the muscular sense. It is interesting just here, however, to note that Ferrier in the first edition of "Functions of the Brain," while he took a positive stand against the theory of Bain and others and declared that we could have no sensation not centripetal in origin, denied that few objects were known to us by sensory impressions only. This apparently strangely contradictory position has been frequently criticised. I remember many years ago as a student being strangely puzzled by that chapter. But in his second edition he has expressed himself more consistently—(Bastian claims he has changed front, but this he strenuously denies)—and he says the motor centres are the organic bases of motor acquisitions. But he still is opposed to the view that the motor centres are concerned directly with consciousness. Their relation to consciousness is simply in arousing the sensory centres by association. Others present at this meeting took various intermediate positions, but there seemed to be no uniformity of opinion on this most interesting question. Before entering further upon this

discussion let us hastily review the evidence on this subject. Our knowledge of the physiology of the cortex is derived from two sources: experimentation on lower animals, and clinical and pathological study in man. The methods of work on the lower animals have been essentially the same from Hitzig and Fritsch and Ferrier to Horsley. The differences are in the greater refinement of details.

The work on animals consists of studying the symptoms subsequent to ablation of portions of the cortex, and watching the movements made after stimulation of definite regions with the electrical current. Horsley's experiments are, as is to be expected, the most accurate and reliable, he having had the advantage of the work of his predecessors, and of more careful methods, such as antisepsis. But it does not appear that his work, while of marked benefit to cerebral surgery, has added materially to our knowledge of cerebral physiology. The facts resulting from laboratory experiments are for the most part admitted by all. There is as might be expected a wide difference in the inferences drawn therefrom.

From this class of experiments it is established that a definite relation exists between certain well defined points in that part of the cerebral cortex lying about the fissure of Rolando and certain voluntary muscles or groups of muscles; that electrical stimulation of these points in the cerebrum is usually followed by a contraction of the corresponding muscle or group of muscles; also that voluntary motion is suspended in whole or in part after removal of this portion of the cortex.

It is also established further that this so-called motor area is essential to voluntary movement.

But we shall not find our conclusions concerning the action of a normal human brain drawn from phenomena observed on stimulating the brain of an etherized animal go unchallenged. The conditions are so widely different that we must look to clinical study and pathological research to confirm all we dare claim to know of human cerebral physiology. But in this field progress must necessarily be slow. The lesions are not made by the observer, nor can the symptoms be studied by those who hold opposite theories. It is unavoidable that the reporter's preconceived theories should not color his observation and inferences. The study of aphasia or speech disturbances has given us the most valuable information we possess in the question of cerebral

physiology from the clinico-pathological side, and for the purposes of this discussion it will be sufficient to confine ourselves to the study of language, laying aside consideration of the trunk, and limb muscles and their respective "motor centres."

When Broca announced his truly remarkable discovery that loss of speech was in certain cases accompanied by a lesion in the posterior third of the third frontal convolution, a most important step was made in the study of cerebral physiology.

Some years later Wernicke was able to describe a form of speech disturbance, clinically and pathologically distinct from that in Broca's cases.

This has been called (unfortunately so, as it seems to me) sensory aphasia or amnesia; and to distinguish the two, the first described by Broca is spoken of as ataxic or motor aphasia. It is this term *motor aphasia* with which I am disposed to find fault. It seems to me to be as purely sensory as any form described. But I will return to the point later. Still further study and analysis of cases of speech disturbance has led to several more forms of psychical speech disturbance, with a more or less complete localization of the corresponding cerebral lesion. I trust I may be pardoned if I hastily review the already well-beaten path, namely, the psychology of speech. When a word is heard there is, it is safe to say, an excitation of the cerebral cortex in a region more or less sharply defined. This region has been called the auditory *word* centre, as it is supposed that words are recorded in a region by themselves, distinct from other sounds perceived. When this word (let us say the word *bell*) is repeated by the hearer, there is in addition to the auditory sensation of the voice of the speaker a sensation of various muscular movements, movements of lips, tongue, larynx, etc., and combined with them certain tactile sensations and possibly a third element of joint sensation. In other words, coincident with the auditory sensation is the complex kinæsthetic sensation. It is not necessary to suppose that the tactile element and the muscular element of this sensation have a different location in the cortex, in fact there is evidence that it is not the case. We do not analyze our movements; we feel them as one thing, a thing done, a word spoken. It is fair to suppose these auditory and kinæsthetic sensations of the word *bell* are recorded in two distinct places, topographically, though strongly linked together with associating fibres. So that when one image is revived the other is also necessarily. It is probable that silent thought is conducted

by means of these closely related word images, more especially by the auditory, however. When a person learns to read or write there become associated with these primary sense images a visual image of the written or printed word and one more kinæsthetic image of the act of writing the word. These later acquired images are appendaged as it were to the others and are not essential to, nor probably involved in, silent thought or speech. Still we frequently meet with disturbances of writing and reading that throw much light on the phenomena of brain action. Still further, when one learns to speak and write other languages than his own the number of new associations and images becomes greater, and it is bewildering to think of the net-work of brain associations in the man who can speak fourteen languages. It must not be forgotten that our idea of the object *bell* is again a complex affair made up of visual tactile kinæsthetic, temperature and auditory impressions. It is now evident that an idea or concept cannot be said to be limited to a definite spot in the cortex, but it is spread out over almost its entire area. Hence the notion of an ideational centre seems hard to understand, and so far as I know there are no clinical facts that call for any such centre. It is now evident, if we are right so far, that lesions in various parts of the cerebral cortex may be expected to cause disturbances of speech, and this is the case. There are four varieties well defined, *i. e.*, "motor aphasia," agraphia, word deafness, word blindness. There is still left unclassified a large number of cases presenting a variety of symptoms, all to be grouped under the term sensory aphasia, taking this term in its present restricted sense, which cannot be yet well defined. Bastian describes many such cases as *commissural amnesia.* We have seen that in a person who knows how to read and write the idea is fourfold. A lesion in the auditory visual cheiro-kinæsthetic or glosso-kinæsthetic areas or in any of the communicating fibres or in fibres associating the word idea with the object idea, will give rise to speech disturbance. A destruction of the auditory word centre will give rise to a condition where the person will not recognize a familiar word. We say he is psychically deaf, but he may not be deaf to familiar sounds: he may recognize the sound of a musical instrument or a tune. In this case the lesion in several cases has been found in the posterior half of the upper or second temporal convolution. Should fibres leading from and to the kinæsthetic centres be impaired it would be impossible to repeat or write from dictation, while it

would be possible to talk or write. There are yet two centres, the glosso-kinæsthetic or Broca's centre and the cheiro-kinæsthetic or writing centre, to be considered. Nothing is more certainly established in connection with this subject than that a lesion in Broca's region is followed by the difficulty known as motor aphasia. The "*centre*" corresponding to agraphia has not been definitely located yet, many cases indicating a commissural lesion in the track connecting the visual word centre, *i. e.*, the hand centre. But it must not be forgotten that if, as we have assumed, so large a portion of the cerebral area is involved in the function of language, and the so-called centres occupy so small a relative portion that *a priori* we should expect to find the greater number of lesions to be commissural rather than central. Do the results of electrical stimulation prove the area in question to be a motor *area?* Munk, who has made many such experiments, thinks not—he believes it to be a sensory centre; while Ferrier and his school, who have made an enormous number of similar experiments, are equally certain that their results show it to be a motor centre and not directly concerned in consciousness. Because a certain movement follows electrical excitation of a certain point in the cortex it does not follow that this brain area is in health the seat of a voluntary impulse for the contraction of its corresponding muscle. Still less does it prove that this area is motor rather than sensory.

For Munk and Schäfer and many others have demonstrated beyond all question that stimulation of what is admitted by all to be a sensory centre, the occipital lobe, the centre for vision, is followed by movements of the eyes and head. But taking this method together with the results of ablation of parts of the cortex, we are warranted in drawing many more inferences, at least as regards animal physiology. On looking through Horsley's recent reports to discover what new light if any had been shed on this question, I found he did not make a serious attempt to solve this question; but he mentions that in one or two instances he made an experiment with reference to the physiology of this region. But as he himself says they prove nothing. He attempted to test the muscular sensibility of an ape after removing or cutting the cortex. How can we test the muscular sense on a dumb animal? Such a test cannot be made. Again he appears to mistake the theory of the physiology of the cortex entirely. No physiologist contends so far as I know that sensations may not be received and motions result independently of the cortex. The cortex is the seat of

remembered sensations, the seat of voluntary movements. For that reason all such tests must be made on a human being whose mind is sufficiently clear to express his states of consciousness or be capable of voluntary action. The criticism made on some of Mr. Horsley's deductions regarding the thumb centre by Brown-Séquard, while sarcastic, is perfectly just. He says it does not follow because the thumb moves after electrical excitement of a certain point in a certain convolution that that is the centre of movement for the thumb. As well say that the centre of laughing is in the sole of the foot, because irritation of that point is followed by laughter.

This entire series of experiments on animals is subject to this criticism, but we do not base our theories of cortical function on so slight a foundation. As I have already said we must admit that there is a close physiological relation existing between these cortical areas and the various muscular groups. It is admitted that we have a muscular sense. It is admitted that certain areas of the cortex are storehouses for visual and auditory sensations. No adequate area has yet been defined for reception of tactile sensations. And almost no space at all for the muscular sense. It would not be unreasonable to suppose that for senses having so large a peripheral area there would be a considerable cortical area. But this is a mere conjecture. But on reviewing the experiments on animals there appears to me no objection to considering this region a sensory region; whether muscular or combined muscular and tactile it does not matter. But what evidence do we get from clinical examination? We have for the sake of simplicity limited the discussion to the various forms of aphasia. Here we find a patient no longer recognizes spoken words, we say he is psychically deaf, not deaf, but there is a forgetfulness of spoken words; the sound arouses no association, it is a sensory aphasia. It is true the lesion here may be not alone in the cortical cells, but in the channels adjacent, either ingoing or outgoing. We have seen that the lesions in several such cases are in the places where we should expect to find them from the result of the physiologist. And so in case of word blindness, there is a forgetfulness of written words, a *sensory* aphasia. Let us for the sake of an argument assume that Broca's convolution is a kinæsthetic sense region. What would we expect of this region should it be thrown by disease out of connection with the rest of the cortex? What would we expect as the result? The patient could think, could understand spoken

and written words, but he could not use the acquired faculty of speech. He would have forgotten how to speak. Voluntary articulation would be lost. Here too is a forgetfulness. The patient is in the same condition as a child a year or two old who has not begun to talk (except for the matter of reading.) The child has not acquired the faculty, the aphasic man has lost his. As the idea of a muscular sense renders the psychology of sensation so much more simple, so does it seem to me that if we accept the idea of the Rolandic area being a sensory area we have a much simpler view of the physiology of the cortex and in no way do violence to the accepted facts in physiology or clinical medicine. We have seen how complex are the simplest ideas we possess of external objects; it is seldom composed of less then four sensory elements and at times of as many as six if not seven or eight. All ideas of words have, if we call the kinæsthetic sense one, *two* elements; if we divide it then we must say three or even four; and in the mind of one who can read and write there are two more elements. Then too our idea of size of an object as judged by the eye is composed of the retinal impression intimately associated with the impression from the ocular muscles. This association is so close and so constant the combined impression must be considered as one. If then the kinæsthetic element (or motor element if you choose) enters so largely into our sense impressions of external objects and their names, we must either admit of most ideas being *sensori-motor*, or else consider the so-called motor elements really a sensory element. If we consider the motor feeling as something radically different from other feeling, then we must consider most impressions to have this dual character. And in fact this is the position recently taken by a few writers. But it seems to me much more simple and consistent, and for that reason wiser, to consider the cortex as entirely (so far as explored) a sensory region, the seat of memory and the will. And as I have already said psychologists are rapidly coming to more harmonious views of cerebral action, and the disputes seem after all to be little better then a contention for names. But there is still one more consideration. We know that in perverted action of the brain we have hallucinations, or vivid revivals of stored sensations. Do we have hallucinations of the muscular sense? Verbal auditory hallucinations are very common. Do we have kinæsthetic hallucinations? Hallucinations of the muscular sense are very frequent, as is well known, with those who have lost a limb. Cramped positions,

and movements felt are described by a very large proportion of those who have lost a limb, according to the statistics collected by William James. Since I have been asked to write a paper for this meeting I have been surprised and most highly delighted to have come across a recent paper by Tamburini, (translated by Workman), on the subject of "Motor Hallucinations." *Motor hallucinations*—here again we have a strange inconsistency. An hallucination is sensory surely; how much better to regard such as an hallucination of a sense of movement, as there is no denying that movements give rise to a sensation. But the cases collected and described by Tamburini are so unique and extremely interesting that I must quote from his paper. He says: "The theory advanced by me in 1880 and now fully accepted, that hallucinations essentially consist in an *imitative state of the psycho-sensory centres* of the *cerebral cortex*;" and further on, "the undoubted fact that the mental image of a word consists of three sorts of images — the auditory, the visual, and the motor, which have their seats thus: the first in the cortical centres of hearing; the second in those of vision; and the third in those of motion." Tamburini first quotes Séglas as having described *psycho-motor verbal hallucinations*. He mentions four cases reported by Séglas who had this interesting hallucination. The first a woman, who labored under hallucinations of all the senses, among which were certain voices which obliged her to pronounce certain words against her will. At these times she felt that these voices were spoken in her mouth and she was constrained to move her tongue, but her mouth remained closed and no sound was uttered; she understood what they said "from the *movements of her own tongue*," to use her own words. A second case, a woman suffered from hallucinations of all the senses, and among these from voices; she had some which she perfectly distinguished from all others, because she did not hear them from her ears, but, as she said, by means of the *movements made within her*, which told her the words. A third case, of a paranoiac priest, who in addition to true auditory hallucinations, (telephonic voices,) had some of a *purely labial character*, which were accompanied by a slightly accentuated auditory sensation, but they chiefly consisted in movements of a verbal articulation. The fourth, a woman, feels within herself certain priests talking continually, but she does not hear their voices; she knows, however, what they are saying by the *motions which they provoke in her tongue*.

Tamburini then proceeds to give an account of a highly interest-

ing case observed by himself, which is quite typical. He points out that three of Séglas's cases do not present absolute neatness, as they are complicated with other hallucinations. This case, a female peasant, at the age of fifteen became melancholy and had hallucinations of voices which told her she was lost eternally. At the age of twenty-seven, soon after marriage, she again became melancholy without previous presentation in her mind of corresponding ideas; she perceives certain words "*forming themselves in her mouth*," (this is her expression.) In taking food, she felt these words *coming into* her mouth: "You may eat a serpent; you may swallow a live toad." When she prayed the words were maledictions and blasphemies against the Deity, and were formed in her mouth. This sensation was so vivid and overpowering that she was forced to repeat the words in a loud voice, and she fell in consequence into a state of mania and desperation. Later she became tranquil and gave a clear account of her hallucinations. She was no longer obliged to repeat aloud the voices (words?) which are *formed in her mouth*. She does not hear these words as if they were voices, but she feels them *forming in her mouth* as if she were pronouncing them without really doing so. She feels the words in the point of her tongue, which she feels to be in slight but continual movement. This movement is readily perceived by another, but the lips remain motionless. "But besides being convinced that these movements have more the character of a chronic spasm of separate groups of muscular fibres than of motions of articulation, even incipient, we are readily satisfied that this perception of the words is not closely colligated with such movements, for when the tongue is forcibly held motionless, she perceives them all the same." Still further, "when she really pronounces other words aloud, she feels under formation in her mouth the wonted ones of abuse, blasphemy, etc., etc." "In this case the part of contrast is also singular; the constant antithesis presented by those special hallucinations. Whatever she may be doing, whether eating, working or praying, the words are revilings, threats or bad wishes against her operations; and even when she hears the name of God or those of the Saints pronounced by other persons, she feels forming in her mouth blasphemies against them." "In this case there was neither visual nor acoustic hallucinations. Nor was there any idea of persecution. There was simply the perception of words which, as she said, she learned in her mouth; not in the form of voices, but by the sensation of a sort of slight

movements produced in her tongue, and she found these even when the tongue was engaged in the voluntary pronouncing of other words, or when it was forcibly held immovable outside the mouth. Here, therefore," he says, "we have a true motor verbal hallucination, that is to say, of words which are perceived solely by means of a sensation corresponding to that of the movements of articulation, which would be accomplished were the words actually pronounced, and they are equally perceived whether a sort of initial articulation is effected, or this does not take place at all." This is truly disappointing. He opens his paper with the distinct statement for which he claims originality, that hallucinations "essentially consist in an irritative state of the *psycho-sensory* centres of the cerebral cortex," and later says, "motor verbal hallucination, that is to say, of words perceived solely by means of a *sensation*, corresponding to that of the movements of articulation." It might be supposed that Tamburini used the term motor hallucination as a convenient one to avoid confusion, and really accepted the theory of the sensory character of our consciousness of movements, were it not that he devotes considerable space to this question, and gives the views of the eminent psychologists on this point, namely, Bain, Meynert, Strecker, Beaunis, Bastian, Cramer, Lewes, Spencer, Charcot and Wundt. The view of the latter he considers the most complete, which is that of the mixed theory of sensation and movement. Wundt holds it to be the result of three factors: First, of the sensation of pressure on the skin and subcutaneous parts. Second, the sensations of contractions of the muscles, (muscular sense, properly so called.) Third, the sensation of central innervation of the motor organs. But the difference between this view and those of Bastian and others is not so very great after all. We are certainly greatly indebted to Tamburini for his remarkably lucid and interesting report of this rare affection, and for the great depth of penetration shown by him in analyzing the symptoms in this case. Certainly, we could not have asked for a more clear illustration to defend the theory of the sensory nature of the so-called motor area. The fact is one of the most important contributions to psychological medicine of the past twenty years.

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INTRA-CRANIAL TUMOR, WITH ABSENCE OF DIAGNOSTIC SYMPTOMS.*

BY C. B. BURR, M. D.,
Medical Superintendent of the Eastern Michigan Asylum, Pontiac.

The following case, which possesses features of much interest from diagnostic and pathological standpoints, came under observation at the Eastern Michigan Asylum:

A female, aged 66, farmer's wife, addicted to the use of tobacco and to some extent to stimulants, but naturally quiet and reserved in manner, was admitted to the Asylum in June, 1884, and was continuously under treatment up to the time of her death. Her sister was insane. For some time previous to admission she had shown disagreeable peculiarities, had entertained delusions respecting her relatives, and made improper accusations against them. She had suspicions of poison, believed her relatives were inimical to her, and had threatened to kill them. She once attempted to set fire to her own house, had assaulted her invalid husband, and was destructive to clothing. For about a year previous to admission it had been necessary to confine her in a room. Her characteristics on admission were those of confirmed dementia, with mental elation. She was somewhat excited and loquacious, formed acquaintances readily, was pleasant toward others, and mistook the identity of certain ones. She was inclined to be boisterous and frivolous, and her conversation was for the most part incoherent. She was not industrious. Under treatment she improved in many respects. Her habits, which at home had been careless and untidy, were corrected. She became industrious, and was eventually able to occupy a room in the sewing-hall. She had periods of irritability which usually lasted for a few days at a time. Such periods were apt to occur if any changes were made in her surroundings. Her relations with her physician and attendants were for the most part pleasant, but she contracted prejudices readily, and was apt to be spiteful and caustic in her remarks in case things did not go in accordance with her ideas. Her impressions respecting members of her family continued of an unpleasant character. She ignored their

*Read before the Association of Medical Superintendents of American Institutions for the Insane at Niagara Falls, 1890.

letters, was denunciatory toward them when they came to visit her, and did not care to see them. The death of a son, however, affected her deeply. She was extremely sensitive and childish, and was unwilling to participate in the amusements or entertainments provided for patients, unless she received special invitations. At times she displayed emotional excitement and irritability, but as a rule was good-natured. About a year ago she developed unpleasant characteristics. She had frequent quarrels with her room-mates and made threats, but her excitement as a rule lasted for a few moments only.

In January of the present year it was noticed that her physical health was declining. Her appetite was not good, and she complained of insomnia. She had an attack of the prevailing grippe and was in bed part of the time for three or four days. It was then noticed by her physician that she had a small swelling over the right frontal eminence. It had the appearance of a bruise, although there was no external discoloration. Her attendants were unable to account for it, but she herself attributed it to a fall ten days previously. She stated that while doing her room-work she stumbled on a mop lying near the bed, and fell, striking her head on the bed-post. It was naturally concluded that the swelling was due to hemorrhage, but it did not, as was reasonably expected, subside. On the contrary, it increased very materially, and extended downward and to the left, across the lower part of the forehead. The eyelids became œdematous. The swelling was hard and apparently non-fluctuating; but a satisfactory examination was difficult, owing to her strenuous opposition. She grew progressively more feeble, and about ten days after the swelling appeared it became necessary to transfer her to the hospital for closer personal attention. She objected to the transfer and scolded and censured her physician, but after considerable urging and the exercise of gentle force, the change was made. On the sixth of February, about two weeks after the injury was noticed, she first complained of pain in the face, and required an anodyne. Aspiration of the swelling was negative in its results, the needle being clogged by a blood-clot, and the diagnosis remained in doubt. Five days later ulceration occurred and considerable discharge of pus took place from the most prominent part of the swelling. The cavity exposed was superficial and extended upwards beneath the scalp. The probe passing beneath the tumor showed the presence of denuded bone. The cavity was syringed with an

antiseptic solution. During the following week the swelling rapidly increased in size, and the overlying skin showed a net-work of distended veins. The pus cavity became nearly closed, but a sinus extended from the ulcerated surface downward and inward about 1½ inches. On the 27th of February, nearly a month after the appearance of the tumor, she was operated upon by Dr. Christian, of the Asylum Staff. The tumor was enclosed within an easily separable capsule and showed, on section, an alarming resemblance to brain matter. It was not vascular, except on the surface, and was of a firm consistency. Passing the fingers beneath it, it was found that its apparent origin was within the skull, an opening through which it had penetrated the frontal bone being found, about the size and shape of a half-dollar. Owing to the age of the patient, the large mass of the pedicle, the occurrence of considerable surgical shock, and the apparently malignant character of the growth, its extirpation was deemed unwise; but it was shaved off as near to the skull as possible. Its pedicle pulsated as with the brain. She rallied promptly from the operation; and although there was a rapid and angry recurrence of the tumor, her strength was sustained until the 20th of May last, when she succumbed to exhaustion. The tumor was of an immense size, and her appearance deplorable. An herpetic eruption appeared on the face. Free secretion of pus of an offensive odor, with burrowing into the left eyelid, occurred. She had irregular elevation of temperature, suffered much pain and sustained attacks of syncope and of nausea and vomiting. Her urine contained numerous hyaline casts. A purulent discharge took place from the nostrils, leading to the conjecture that a communication existed between the tumor and the nasal cavity. On the 25th of April, about two months from the time of the operation, the tumor was twelve inches in circumference and four in diameter. Its appearance at that time is indicated by the accompanying photographs. Examination of the tumor by the Pathologist of the Asylum, Dr. Frank W. Brown, of Detroit, showed it to be a giant-celled medullary carcinoma of most malignant type.

Post-mortem Examination.—Body anæmic and emaciated; feet and hands œdematous; rigor mortis moderate; on the forehead a large and prominent tumor, showing deep and irregular ulceration. The mass had perforated the frontal bone, lifting the periosteum, and upon those portions where ulceration had not occurred, this membrane formed a capsule for the tumor. Skin reflected and dissected off from the growth. The perforation in the skull had

an irregular and jagged outline, and was of the shape and dimensions shown in the accompanying sketch. The skull was denuded of periosteum for a space varying from one-quarter to one inch around the margin of the opening. Nasal bone softened; dura mater firmly adherent to the skull; meningeal fluid in excess; appearance of brain anæmic; atrophy of frontal convolutions more marked on the right side; first frontal convolution firmly adherent to dura mater and involved in cancerous process which, springing from the anterior surface of the dura, had extended to the convolution by perforating this membrane; cribriform plate of ethmoid destroyed; orbital plates of frontal on both sides necrosed and on the left perforated, permitting extension of cancerous growth into nasal and left orbital cavities.

The case is of especial interest because of the absence, from first to last, during its progress, of the slightest symptoms pointing to intra-cranial tumor. The patient had been under constant observation for more than five years. Although demented, her condition was such that she was able to express any subjective symptoms which she might have experienced. She was not subject to periods of dizziness or nausea, never had the slightest sign of paralysis, gave no evidence of disturbances of any of the special senses, never complained of headache. In the article on "Tumors of the Brain and Its Envelopes," by Drs. Chas. K. Mills and James Henrie Lloyd, contained in "Pepper's System of Medicine," the statement is made that "cases have been reported in which intra-cranial tumors of considerable size were discovered on autopsy, and had evidently been present for years without their presence having been discovered, or even suspected; but these are extremely rare." Similar statements are made by other writers, cases being reported in which the appearance of the tumor externally was the first intimation of its existence. The above case must be assigned to this category. A careful study of the symptoms the patient presented previous to the appearance of the swelling upon the forehead, fails to bring to light a single one suggestive of the presence of an intra-cranial growth. I am myself in doubt whether the slight increase in irritability which the patient showed during the past year had any connection, immediate or remote, with the development of the tumor.

Although rare, the case is by no means unique from a pathological point of view. Numerous authors speak of the occurrence of tumors arising from within the skull, producing absorption of portions of the cranial bones by pressure, and appearing upon the

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surface. The most common variety of tumor which presents these characteristics is the so-called fungus hæmatodes of the dura mater, assigned by some pathologists to the class sarcomata, by others to the carcinomata. Drummond, who reports* four cases of perforating tumor of the dura mater, gives the opinion that these growths are invariably malignant, but contrary to the views of Lawson Tait, classes them among the sarcomas. Cases of true cancer of the dura have, in his experience, shown no tendency to perforate. In our case, microscopical examination leaves no room for doubt as to the nature of the growth. Its appearance is characteristic of medullary carcinoma.

Bramwell, in his work on tumors of the brain, makes the following observation: "Perforation of the bones of the skull only occurs, so far as I know, in sarcomata and cancers." While preparing this paper, however, I have been informed by a medical friend that in two cases which came under his observation, of suspected syphilitic gummata, perforation of the cranial bones occurred, and in one a reducible tumor appeared in the frontal region. I should be much interested to learn the experience of others concerning these matters.

Pathologist's Report.—Since the preparation of the above paper, I have been favored with the following report from Dr. F. W. Brown, of Detroit, Pathologist to the Asylum:

"Microscopical examination of the tumor shows it to be composed of luxuriant spindle cells and large masses of epitheloid tissue. In many spots the spindle cells have become organized into fibrous tissue. This is an uncommon appearance, in view of the rapid growth of the tumor. The epitheloid cells are massed together, and in many spots grouped within alveoli. In these alveoli the connective tissue does not seem to be in connection with the cells, which appearance is characteristic of carcinomatous growths. In other places where the cells are massed together, the connective tissue does seem to pass between them, an appearance which is more characteristic of sarcomatous growths. It may be said that the tumor resembles a carcinoma more than a sarcoma, and should be classed in the former group. Tumors of this nature springing from the dura mater have been spoken of as endotheliomata."

For the accompanying drawing of the microscopical section of the tumor I am indebted to W. P. Manton, M. D., F. R. M. S., of Detroit, Consulting Gynæcologist to the Asylum.

* *British Medical Journal*, October, 1883.

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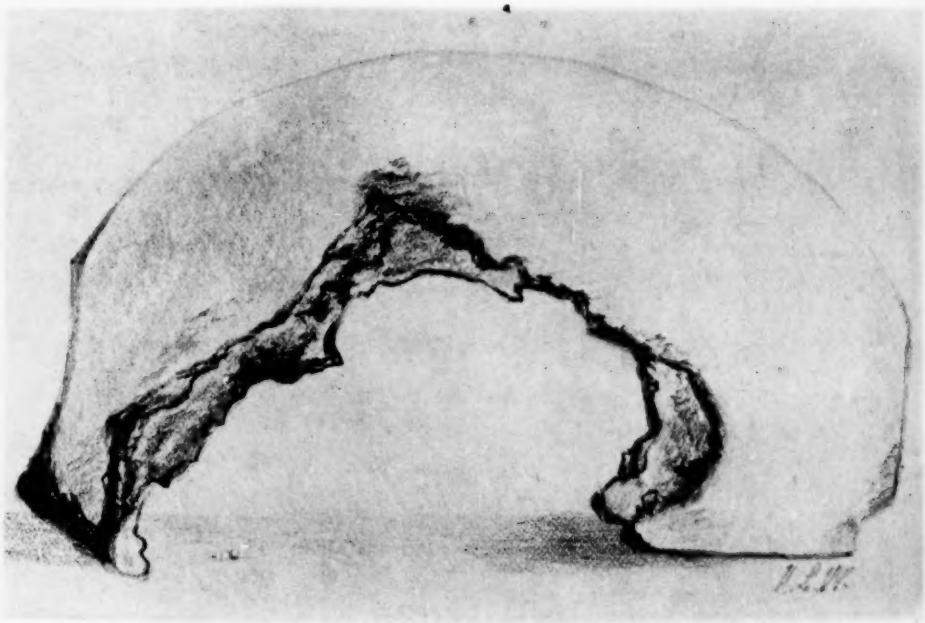
Bramwell, in his work on tumors of the brain, makes the following observation: "Perforation of the bones of the skull only occurs, so far as I know, in sarcomata and cancers." While preparing this paper, however, I have been informed by a medical friend that in two cases which came under his observation, of suspected syphilitic gummata, perforation of the cranial bones occurred, and in one a reducible tumor appeared in the frontal region. I should be much interested to learn the experience of others concerning these matters.

Pathologist's Report.—Since the preparation of the above paper, I have been favored with the following report from Dr. F. W. Brown, of Detroit, Pathologist to the Asylum:

"Microscopical examination of the tumor shows it to be composed of luxuriant spindle cells and large masses of epitheloid tissue. In many spots the spindle cells have become organized into fibrous tissue. This is an uncommon appearance, in view of the rapid growth of the tumor. The epitheloid cells are massed together, and in many spots grouped within alveoli. In these alveoli the connective tissue does not seem to be in connection with the cells, which appearance is characteristic of carcinomatous growths. In other places where the cells are massed together, the connective tissue does seem to pass between them, an appearance which is more characteristic of sarcomatous growths. It may be said that the tumor resembles a carcinoma more than a sarcoma, and should be classed in the former group. Tumors of this nature springing from the dura mater have been spoken of as endotheliomata."

For the accompanying drawing of the microscopical section of the tumor I am indebted to W. P. Manton, M. D., F. R. M. S., of Detroit, Consulting Gynæcologist to the Asylum.

* *British Medical Journal*, October, 1883.



Perforation of Frontal Bone. (After a drawing.)

Drawing from Microscopical Section of Tumor. Dr. Manton.

SCHEME FOR A PATHOLOGICAL INDEX.

BY JAMES C. HOWDEN, M. D.,
Physician-Superintendent of the Royal Lunatic Asylum, Montrose, Scotland.

The Pathological Records of Hospitals and Asylums are mines of valuable facts practically unworked, because of the weary labour entailed in exploring them. An investigator in want of information on any lesion has to wade through pages of totally irrelevant matter before he gets at the facts he is in search of.

The object of the annexed scheme for a pathological index is to lessen this labour by affording a ready means of reference to the recorded data regarding each separate lesion.

I have adhered, as strictly as possible, to a purely anatomical nomenclature, avoiding the use of terms which imply a throng of morbid changes going on during life.

Provided with such an index, the enquirer can at once refer to the case or cases where he will find the facts he is in search of by turning to the page in the index. A student, for instance, who wishes to investigate false membranes in the arachnoid sac, finds that his index refers him to the Pathological Record, Vol. I, pp. 3, 53, 349, etc., to Vol. II, pp. 63, 306 and 542, and to Vol. III, pp. 16, 32, 54, etc., for males; and to Vol. I, pp. 95, 163, 269, etc., to Vol. II, pp. 69, 433, 502, and to Vol. III, pp. 20 and 60 for females.

I have confined myself to indexing gross lesions, for though an index of microscopic appearances would be most valuable, pathological history has made, and is making such rapid progress, and the changes in its nomenclature are so frequent, that the task appeared impracticable.

The scheme which I am advocating is no visionary one, as I have an index now in use giving an analysis of upwards of eight hundred post-mortem examinations made during the last thirty years in the Montrose Royal Asylum. During all that time, on the completion of an autopsy, the various lesions were at once indexed under their respective headings.

I am indebted to Professor W. T. Gairdner, of Glasgow, and to Dr. Joseph Coats, pathologist to the Glasgow Western Infirmary, who have kindly looked over the manuscript of the index before publcation, and I trust it may prove as useful in general hospitals as it has done in the special practice of an asylum.

HEAD AND SPINE.	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
SCALP,		
CALVARIUM—		
Abnormally thick,		
Abnormally thin,		
Irregular thickness of,		
Formation of new layering inside inner table,		
Asymmetry,		
Brittle,		
Fractures of the vault,		
Fractures of the base,		
Roughening of the outer table,		
Projecting spicules of bone from,		
Caries,		
Caries with perforations,		
Spongy,		
Eburnated,		
Abnormal injection of the diploë,		
MEMBRANES—		
a. *Dura mater*—		
Rusty appearance on inner surface of,		
Sinuses, rupture of,		
" thrombosis in,		
Pacchionian bodies,		
Extravasation of blood between calvarium and,		
Firmly adherent to calvarium,		
Abnormally thickened,		
Ossification of,		
Tumours involving,		
Congestion of,		
Rusty staining of,		
b. *Arachnoid*—		
Effusion of blood into sac of,		
Sanguineous cysts in,		
Excess of cerebro-spinal fluid in,		
Semi-gelatinous fluid in sac of,		
Pus in sac of,		
False membrane in sac of,		
Crystalline granulations on,		
Opacity and thickening of,		
Adhesion of surfaces of,		
Tumours involving,		
c. *Pia mater*—		
Marked injection of vessels of,		
Œdema of,		
Pus in,		
Gelatinous fluid in,		
Local bullæ of fluid,		
Sanguineous effusion in,		
MEMBRANES—		
Tumours involving,		
Brown gelatinous deposit in,		

HEAD AND SPINE (*continued*).	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
MEMBRANES (*continued*)		
Thickening of,		
Adhesion to the grey matter of,		
Tuberculosis of,		
BLOOD-VESSELS—		
Aneurismal dilatation of,		
Miliary aneurisms,		
Embolism in,		
Thrombosis in,		
Injection of,		
Atheroma of.		
Opacity on the line of,		
Venous congestion,		
Punctæ,		
GREY SUBSTANCE—		
Bullæ on the surface of,		
Abnormalities in the thickness of,		
Abnormalities in the colour of,		
Anæmia of,		
Injection of,		
White softening of,		
Red softening of,		
Atrophy of		
Œdematous condition of,		
Superficial cyst in,		
Flattening of the convolutions,		
Effusion of blood into,		
Increased vascularity of,		
Tumours in,		
Granulations on surface of,		
WHITE SUBSTANCE—		
Induration of,		
Œdema of,		
White softening of,		
Brown softening of,		
Effusion of blood into,		
Effusion of pus into,		
Excessive shrinking of,		
Marked injection of the vessels of,		
Cysts in,		
Atrophy of,		
Tumours in,		
Pink mottlings,		
Irregular vascularity of,		
OPTIC THALAMUS AND CORPUS STRIATUM—		
Hæmorrhage in,		
Punctiform hæmorrhages in,		
Pink gelatinous softening of,		
White softening of,		
Tumours in,		

HEAD AND SPINE, (*continued*),	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
Optic Thalamus and Corpus Striatum, (*continued*)—		
Cysts in,		
Patches of sclerosis,		
Local atrophies,		
Cicatrices in,		
Atrophy of the optic nerves and tracts,		
Grey sclerosis of the optic nerves and tracts,		
Ventricles—		
Excessive serous fluid in,		
Granulations on, and thickening of ependyma,		
Sanguineous effusion into,		
Purulent effusion into,		
Tumours involving,		
Dilatation of,		
Septum Lucidum—		
Leathery conditions of,		
Tubercle in,		
Bullæ in,		
Choroid Plexus—		
Cysts in,		
Tumours in,		
Earthy deposit in,		
Congestion of,		
Œdema of,		
Corpus Callosum—		
Softening of,		
Pons—		
Atrophy { (*a*) General,		
Atrophy { (*b*) Unilateral,		
Hæmorrhages into,		
Softening of,		
Congestion of,		
Softening of floor of fourth ventricle,		
Cerebellum—		
Adhesions of membranes to,		
Effusion of blood into pia mater of,		
Tumours in,		
Pus in,		
Œdema of,		
Softening of,		
Atrophy of { (*a*) General,		
Atrophy of { (*b*) Unilateral,		
Corpora dentata,		
Spinal Cord—		
Membranes—		
Congestion of,		
Pus in,		
Tuberculosis of,		
Calcareous scales on,		

NECK—THORAX.	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
SPINAL CORD, (*continued*)—		
Excess of cerebro-spinal fluid,		
Softening of,		
Sclerosis of,		
False membrane of,		
GENERAL CONSIDERATIONS—		
Marked difference in the weight and size of the two cerebral or cerebellar hemispheres,		
Abnormally firm consistence of the brain,		
Simplicity or complexity of the convolutions,		
Narrow and atrophied convolutions,		
Shallow sulci,		
Softening of crus,		
Apparently normal brains,		
Softening of the right hemisphere,		
Softening of the left hemisphere,		
Abnormalities of nerves,		
NECK.		
Affections of thyroid gland,		
Affections of larynx,		
Affections of trachea,		
Affections of pharynx,		
Affections of blood-vessels,		
Affections of lymphatics,		
THORAX.		
RIBS—		
Malformations of,		
Fracture of,		
Callus on,		
Excessive softening of,		
Effusion of blood, external to,		
Effusion of pus, extended to,		
Ossification of the cartilages of,		
PLEURA—		
Effusion of serous fluid into,		
Effusion of sanguineous fluid into,		
Purulent matter in,		
Congestion of,		
Perforation of,		
Thickening of,		
Calcareous plates on,		
Fibrinous deposit in,		
Blood in,		
Adhesions of,		
Right side { Universal,		
Right side { Partial,		
Left side { Universal,		
Left side { Partial,		
Tuberculosis of,		
Tumours involving		

THORAX, (*continued*).	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
Lungs—		
Tubercular or cheesy condition in { (*a*) Right, ... (*b*) Left, ...		
Cavities in { (*a*) Right, ... (*b*) Left, ...		
Cancer in { (*a*) Right, ... (*b*) Left, ...		
Congestion of { (*a*) Right, ... (*b*) (Left, ...		
Œdema of { (*a*) Right, ... (*b*) Left, ...		
Red hepatisation of { (*a*) Right, ... (*b*) Left, ...		
Grey hepatisation of { (*a*) Right, ... (*b*) Left, ...		
Lobular hepatisation of { (*a*) Right, ... (*b*) Left, ...		
Gangrene of, ...		
Abscess of (non-tubercular), ...		
Emphysematous dilation of air-cells, ... { (*a*) Right, ... (*b*) Left, ...		
Perforation of substance from pleural surface, ...		
Brown induration of, ...		
Pulmonary embolus, ...		
Carbonaceous deposit in, ...		
Calcareous deposit in, ...		
Old cicatrices in, ...		
Collapse of right, ...		
Collapse of left, ...		
Infarction of right, ...		
Infarction of left, ...		
Fibroid degeneration (non-tubercular), ...		
Bronchi—		
Injection of, ...		
Pus in, ...		
Blood in, ...		
Dilatation of, ...		
Bronchial glands enlarged, ...		
Bronchial glands calcified, ...		
Pericardium—		
Adhesion of the surface of, ...		
Marked opacity of, ...		
Thickening of, ...		
Serous fluid in the sac of, ...		
Fibrinous deposit on, ...		
White patches on, ...		
Tuberculosis of, ...		
Effusion of blood into, ...		
Heart—		
Substance pale and flabby, ...		
Hypertrophy of, ...		

THORAX, (*continued*)—	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
HEART, (*continued*)—		
Small,		
Dilatation of right auricle,		
" left auricle,		
" right ventricle,		
" left ventricle,		
Surrounded by fat,		
Fatty infiltration of,		
Fatty degeneration of,		
Cyst in the substance of,		
Tumour in the substance of,		
Fibrinous transformation of muscle,		
MITRAL VALVE—		
Malformations,		
Thickening of,		
Cauliflower excrescence on,		
Incompetency of,		
Stenosis of,		
Pouch-like dilatation of,		
Atheroma of,		
Fenestræ in,		
Adhesion of curtains,		
TRICUPSID VALVE—		
Malformations,		
Thickening of,		
Cauliflower excrescence on,		
Incompetency of,		
Stenosis of,		
Pouch-like dilatation of,		
Atheroma of,		
Fenestræ in,		
Adhesion of curtains,		
AORTIC VALVE—		
Malformations,		
Thickened,		
Fenestrated,		
Cauliflower excrescence on,		
Incompetency of,		
Stenosis of,		
Adhesion of curtains,		
Atheroma of,		
Calcareous deposit on,		
Enlargement of the corpus arantii,		
Fibrous nodules on,		
PULMONARY VALVE—		
Malformations,		
Thickening of,		
Fenestration of,		
Cauliflower excrescence on,		
Incompetency of,		

ABDOMEN.	Page in Pathological Record. Male. Vol. Page.	Female. Vol. Page.
PULMONARY VALVE, (*continued*)—		
Stenosis of,		
Adhesion of curtains,		
Atheroma of,		
Calcareous deposit on,		
Enlargement of the corpus arantii,		
Fibrous nodules on,		
AORTA—		
Atheroma of,		
Ulceration of,		
Dilatation of,		
Perforation of,		
Aneurism of,		
Blood-stained,		
CORONARY ARTERIES—		
Atheroma of,		
Fatty deposit on,		
Thrombosis of,		
Embolus in,		
ABDOMEN.		
PERITONEUM—		
Serous fluid in,		
Purulent fluid in,		
Sanguineous fluid in,		
Tuberculosis of,		
Cancer involving,		
Foreign body in.		
Inflammation of,		
Adherent to parietes,		
Hernia, { Internal,		
Hernia, { External,		
STOMACH—		
Malformations of,		
Cancer of,		
Perforation of,		
Adhesion to liver and absence of part of wall,		
Congestion of,		
Inflammation of,		
Ulceration of,		
Distension of,		
Small bloody extravasation of,		
Tuberculosis of mucous membrane,		
ŒSOPHAGUS—		
Stricture, { (*a*) simple,		
Stricture, { (*b*) cancerous,		
Dilatation of,		
LIVER—		
Malformations,		
Fatty,		

ABDOMEN. (*continued*).	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
LIVER. (*continued*)—		
Waxy,		
Nutmeg,		
Hypertrophy of,		
Tubercle of,		
Tumour in,		
Cancer in,		
Cysts in,		
Bony nodules in,		
Hydatid cyst in,		
Other parasites,		
Earthy deposits in,		
Abscess in,		
Infarction of,		
Fissures of,		
Cirrhosis of,		
Lobulation of,		
Yellow patch on surface of,		
Inflammatory adhesions to peritoneum,		
Capsule adherent,		
" thickened,		
Biliary obstruction and staining,		
GALL BLADDER AND MAIN DUCTS—		
Gall stones in,		
Obliteration of duct,		
Distension of,		
Bile gelatinised in,		
Cancer involving,		
Ductus communis obstructed,		
SPLEEN—		
Capsule thickened,		
Capsule puckered,		
Cysts in,		
Waxy,		
Earthy deposit in,		
Tubercle in,		
Fissured,		
Pulpy,		
Enlarged,		
Secondary spleen,		
Congested,		
Infarction of,		
PANCREAS—		
Hypertrophy of,		
Atrophy of,		
Cysts in,		
Tubercle in,		
KIDNEYS—		
Malformations,		
Fatty,		

ABDOMEN, (*continued*).	Page in Pathological Record. Male. Vol. Page.	Female. Vol. Page.
KIDNEYS, (*continued*)—		
Waxy,		
Abscess of,		
Cysts in,		
Calculi encysted in,		
Calculi in pelvis of,		
Hydronephrosis,		
Dilatation of ureter,		
Simple atrophy of,		
Simple hypertrophy of,		
Infarction in,		
Hæmorrhagic extravasation on surface,		
Large congested kidney,		
Large pale kidney (not waxy),		
Small kidney, smooth,		
Small kidney, granular,		
Capsule adherent,		
Multiple abscesses,		
Pelvis congested,		
Pelvis hæmorrhagic,		
Pyonephrosis,		
Local tuberculosis,		
Disseminated tuberculosis,		
Tuberculosis of ureter,		
Cancer,		
Other tumours,		
BLADDER—		
Distended,		
Inflammation of,		
Calculi in,		
Diverticulæ,		
Hypertrophy of muscular coat,		
PROSTATE GLAND—		
Enlargement of,		
Cancer of,		
Tuberculosis,		
SCROTUM—		
Affections of,		
TESTICLES—		
Absence or malformations of,		
Calcareous deposit in,		
Tuberculosis of,		
Tumours of,		
PENIS—		
Malformations,		
Phymosis,		
Paraphymosis,		
Cancer of,		
Ulcers of,		

ABDOMEN, (*continued*).	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
MESENTERIC GLANDS—		
Enlarged,		
Cancer of,		
Tuberculosis of,		
OMENTUM—		
Tubercle of,		
Cancer involving,		
INTESTINES—		
Malformations,		
Post-mortem discoloration of,		
Gaseous distension of,		
Arterial injection of,		
Venous injection of,		
Waxy,		
Ulcerations of duodenum,		
Tubercular ulceration of jejunum,		
do. do. ileum,		
do. do. ascending colon,		
do. do. transverse colon,		
do. do. descending colon,		
Non-tubercular ulcerations,		
Strangulation of,		
Constrictions of,		
Intussusception of,		
Rupture of,		
Croupous inflammation of,		
Inflammatory matting of,		
Ulceration of cæcum,		
Affections of vermiform appendage,		
Herniæ,		
Diverticula,		
Twists of,		
Piles,		
UTERUS—		
Malformations,		
Myoma,		
Cancer of,		
Other tumours,		
Calcified tumour in,		
Enlargement of,		
Mucous polypus in,		
Cysts in broad ligament,		
Dermoid cysts in broad ligament,		
Prolapse,		
Adhesions of,		
OVARIES—		
Malformations of,		
Colloid cystoma,		
Cysts with dendritic vegetations,		
Cysts largely solid,		

BONES—EXTERNAL LESIONS.	Page in Pathological Record.	
	Male.	Female.
	Vol. Page.	Vol. Page.
OVARIES, (*continued*)—		
Dermoid cysts,		
Solid tumours,		
PELVIC CAVITY—		
Hæmorrhagic cysts in,		
BONES.		
Abnormalities,		
Tuberculosis,		
Caries,		
Fractures,		
Soft condition of,		
Exostosis,		
Tumours of,		
Sinus in,		
Abscesses in,		
Necroses of,		
Curvature of,		
EXTERNAL LESIONS.		
Gangrene,		
Bed sores,		
Bullæ,		
Contracture,		
Hæmatoma,		
Œdema of legs, arms, etc.,		
Tumours of the breast,		
Mottling of the legs,		
Markings or discolorations from old ulcers, etc.		

INSANITY IN TWINS.

BY WILLIAM L. WORCESTER, M. D.,
Assistant Physician, Arkansas State Lunatic Asylum, Little Rock.

The following cases, observed by me in the Michigan Asylum for the Insane, are perhaps of sufficient rarity to warrant putting them on record:

John J., laborer, aged 26, single, of Dutch parentage, was admitted on the 11th of December, 1879. His parents were people of good habits, but his mother was considered rather weak-minded, and both he and his twin brother had always been rather below par intellectually. The patient had been temperate, but was suspected to have been addicted to masturbation. For four or five years he had failed mentally, became indolent and unsociable, and suffered from repeated attacks of mental disturbance, in which he was wakeful and talkative, and evinced delusions on religious subjects. Had not been violent, destructive nor suicidal. At the time of admission he seemed somewhat depressed, and in rather feeble health.

For a number of weeks he remained in much the same condition. He was low spirited and inactive; complained that "his head was weak," and that he could not sleep, and was troubled in mind about what he characterized as "his sin," without being apparently able to specify what his sin was. In the early part of March, 1880, he was comparatively cheerful, but became depressed again towards the end of the month, and soon afterward began to show excitement, rather of the character of agitated melancholia than of mania. He was noisy, restless and disorderly, destroyed his clothing, denuded himself, and practiced masturbation with little attempt at concealment. On one occasion he assaulted an attendant who insisted on his taking his medicine. When reproved for his improper conduct he admitted that it was wrong, but said he was "so bad that he could not help it." He acquiesced in the employment of mechanical restraint at one time, to check his destructiveness, and never tried to justify his misbehavior. His excitement began to subside about the 1st of August, and by the middle of that month he was in a more comfortable mental state than at any previous time since his admission. He did pretty efficient work on the farm until about the 1st of December,

BONES—EXTERNAL LESIONS.	Page in Pathological Record. Male. Vol. Page.	Female. Vol. Page.
OVARIES, (*continued*)—		
Dermoid cysts,		
Solid tumours,		
PELVIC CAVITY—		
Hæmorrhagic cysts in,		
BONES.		
Abnormalities,		
Tuberculosis,		
Caries,		
Fractures,		
Soft condition of,		
Exostosis,		
Tumours of,		
Sinus in,		
Abscesses in,		
Necroses of,		
Curvature of,		
EXTERNAL LESIONS.		
Gangrene,		
Bed sores,		
Bullæ,		
Contracture,		
Hæmatoma,		
Œdema of legs, arms, etc.,		
Tumours of the breast,		
Mottling of the legs,		
Markings or discolorations from old ulcers, etc.		

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when his excitement returned, with the same symptoms as before. This attack lasted less than a month, but left him in much the same condition as at the time of his admission, and was followed by another time of excitement in the latter part of January, 1881. Similar attacks recurred, at irregular intervals, until the following September.

In December, 1881, he showed symptoms of incipient phthisis. The disease made pretty rapid progress for some months, but subsequently seemed to be checked, and from the latter part of October, 1881, to the following September, he worked on the farm, with only one interruption, from a comparatively mild attack of excitement, in a very comfortable condition of body and mind. On the 6th of September, 1882, his twin brother, who was then an inmate of the Asylum, died. This seemed to depress him greatly, and he became incapable of any efficient work. He was taken home for a visit in the following October, and on his return, on the 27th of December, was found to have failed decidedly, both in mind and body. He had cough and fever, with night sweats, and his mind was so inactive that he was almost incapable of conversation. He showed no interest in anything; would not dress himself without help, nor go to his meals without urging. Later, he was inclined to stand in constrained postures, and walked with quick, mincing steps. His pulmonary disease progressed steadily, although he was not confined to bed until July, 1883. He died on the 21st of August of that year.

James J., twin brother of the foregoing patient, was admitted June 4th, 1881. He presented that strong degree of resemblance to his brother that is only seen in twins of the same sex, presumably produced by complete segmentation of a single ovum, as in the case of double monsters. He had always been feeble-minded, and was said to have shown symptoms of insanity for about four years, characterized principally by a mild mental depression.

At the time of his admission he seemed in good bodily health, and, apart from very decided mental enfeeblement, he never showed any marked symptoms of insanity during his stay in the Asylum. He was pretty uniformly good-humored and contented, and often volunteered the remark: "This is a nice place."

In November, 1881, he was first noticed to be suffering from phthisis, which ran a more rapid course than in his brother's case, proving fatal September 6th, 1882.

In these cases, it seems reasonable to suppose that the mental

defect which laid the foundation for the more active symptoms of later life was due to influences dating at least as far back as the time of conception. Whether the habit of masturbation observed in the first case was a cause or an effect of the insanity cannot now be determined. The fact of their contracting the same fatal disease so nearly at the same time, if a mere coincidence, is rather a striking one.

This is the only case of the kind that I have observed, and, so far as my recollection extends, I think few similar observations have been recorded.

THE IMPORTANCE OF SYSTEMATIC COÖPERATION IN STUDY AND RESEARCH AMONG PATHOLOGISTS IN AMERICAN HOSPITALS FOR THE INSANE.

BY W. P. SPRATLING, M. D.,
First Assistant Physician and Pathologist to the New Jersey State Asylum for the Insane, Morris Plains, N. J.

The time-honored adage, "In union there is strength," holds equally as true in regard to the arts and sciences, as it does to any organized effort among laymen, in the pursuit of any calling. From time immemorial it has been an essential practice among men engaged in homogeneous pursuits, to band themselves into bodies, associations and societies, for the purpose of mutual benefit. It seems to us that the time has come when it is essentially fitting to bring, if possible, individual workers in the field of pathological research into more definite relationship with each other. It seems desirable that an association be formed, composed of all who prosecute pathological studies in the laboratories of American Hospitals for the Insane. At the present time the number of workers in this especial field is not large. Each year, however, we find recruits being added to the ranks; new laboratories being fitted out and opened, and those already in existence falling more thoroughly in the line of march of progress, by the addition of increased working facilities, and more modern and scientific implements and improvements. Individual and public beneficence is coming more frequently and substantially to recognize the great needs, the unlimited possibilities, and the moral duties of workers in a science which has for its object the prolonging of human life; and each accordingly lends a stronger hand. We need not speak of the vital importance of pathological study among the insane. The achievements of pathologists in other departments of medicine have been rich in producing methods, and creating means, by which the progress of invading diseases has been stayed or primarily prevented. Pathology, to the physician and surgeon, is an invaluable aid. To the progressive and ambitious student of diseases of the human mind, it is his guiding star.

The obscurity surrounding the field of labor in which the

psychologist is called to apply his efforts, needs to be dispelled by every legitimate and possible means. It is in the study of mental alienation that pathology manifests its greatest value. Accurate and scientific examination of the brain and kindred parts after death gives us a valuable knowledge of the inherent molecular changes and disorganizations that mark the course of diseases of the mind. To know the molecular progress of perverted mental manifestation (for what we call insanity is but the highest type of a symptom) puts, at once, a reliable and potent means in our hands for intelligently combating its invasion. We cannot, then, over-estimate the importance of pathological work among this especial class. The field for research is inviting and practically without limit; the demand for scientific and incessant labor, imperative; while the delicate nature of methods to be practiced always holds the result attained in just appreciation. Much good has already been accomplished by individual laborers in this line; and while we bear firmly this fact in mind, let us press forward to accomplish more. Let the spirit of advancement and improvement now resident in the ambitions of isolated workers be concentrated into one general desire, one unified effort to push research in pathological study among the insane just as far as wholesome energy and unremitting toil will permit, with our present knowledge, to be carried.

The advantages offered by the formation of an association to be composed of the pathologists of American Hospitals for the Insane, to us seem very great. The membership of such an association, though small at first, would annually increase. The number at present is sufficiently large to justify an effort being made in this direction. We need not be discouraged at a primitive origin in mere numbers. All that is requisite is an active, living nucleus from which a society, humane in its ambitions and beneficent in its accomplishments, would in time surely grow. To every member of such an association the laboratories of his associates would be open for his benefit. Every man's field for study and research would be increased in proportion to the number of members entering or joining the association.

The gains arising from coöperative efforts would be felt in many ways, of which the following constitute some of the more important ones:

1. A free interchange of specimens in all shapes, and a liberal exchange of ideas, methods and discoveries, would not only be

aimed at and encouraged on the part of every member, but should be felt by each one to constitute a duty.

2. From the formation of such an association, certain uniform methods and practices in carrying on pathological work would naturally result. While the wisdom of such uniformity is apparent to all, no member should ever be made to feel that too strict an observance of the prescribed methods and practices endorsed by the association, should for a moment debar him from any latitude he may seek in prosecuting his studies and recording any facts or phenomena arising from the result of his labor. The uniformity desired should only apply to the performance of methods in making and recording the results of autopsies, the gross preparations and preservation of specimens, and the construction of public papers and reports. Especially does it seem desirable that more attention be bestowed upon the manner of making public reports. These reports contain the result of the pathologist's labor, and they should be made readable and attractive. They should be given a wider circulation, and not be allowed each year only to be sent out through time-honored, specified channels. Morbid cerebration is not only found within the walls of hospitals built only to receive the insane class, but is to be found in every practitioner's field of labor; and a knowledge of the pathological conditions existing in different types of acute cases, would undoubtedly be of value and interest to the general practitioner.

The third, and most important reason why pathologists working among the insane should associate in a common union, is that more thorough and exhaustive study could be given every class of insanity coming under observation. The domain of cerebral pathology is too vast and too important to be passed lightly over, or studied only at its most salient points. The members of such an association as we have proposed, could work by allotment or selection as the members of the association may deem best. That is, each member may select, or be given, some particular type or class of insanity to which he may devote his entire attention. His studies may be confined to mania, melancholia, dementia, or epilepsy, or any other class or type he may select, or be given. He may study any one disease, or type, for the period of one year, or until he makes his report, or he may extend his studies upon the same subject over a longer period if he so desires.

The following year, he may select, or be given, another type, or class, to be treated in the same manner, as regards time of study, as the last.

As pathological studies are now prosecuted, we believe investigators endeavor to accomplish too much. Such zeal is praiseworthy; but in a measure it tends to defeat the possibilities to be accomplished by science by hurrying over and generalizing on valuable ground. As much study as possible should be bestowed upon recent and curable cases. We can draw but few, if any, conclusions of practical value from pathological conditions found in the brain after death, in chronic cases of long standing, and cases of dementia that have been fixed in character for years. Post mortem study in such cases holds out scientific interest only. Our effort should be directed towards studying the pathological findings in cases which had been of the curable type, or of short duration prior to death. The intelligent application of therapeutic agents in such cases is based more upon a knowledge of the pathological changes going on than upon purely subjective symptoms in the ways of disordered ideation and other intangible evidences of mental work. The fundamental cause for such symptoms lies in an active, possibly demonstrable change going on in the organic constituents of the mind-making parts. Insane acts, or speech, bear about the same relation to disease of the brain that dropsy does to disease of the heart or kidneys. They are but symptoms. The question of the study of cases, however, is more a study for future consideration. The object now sought is the formation of an association.

I have only ventured to meagerly outline the possible scope of work of such an association and to re-impress the great importance of thorough pathological work in this especial department.

In urging the creation of such an association, I have done it with only one object in view; and that object is, that we should do, in the name of common humanity, all that can be done to lessen the painful burden borne by so many fellow creatures. I believe such an association should exist, and I have faith in its establishment and in the great good it will ultimately do.

REPORT ON THE THERAPEUSIS OF MENTAL DISEASES BY MEANS OF HYPNOTIC SUGGESTION.*

BY DR. GIUSEPPI SEPPILLI.

Considering the advance in late years made in the field of neurology by means of experimental research and scientific observation, it is readily perceived that no subject has attracted so much lively and general attention as hypnotism has commanded.

When studied in its various modes of production, its clinical manifestations, its analogies with other phenomena or states of our organism, its genetic conditions and applications, *hypnotism* became the subject of an infinite series of publications which have opened new horizons to the physiology and pathology of the nervous system. It is with high gratification we recognize the fact that in this fertile movement of the studies on *hypnotism*, our own country has not fallen behind other nations.

The applications of *hypnotism* to therapeutics since the impulse received from the French schools, have, in a short time, obtained an extraordinary diffusion. Though very far from sharing in the enthusiasm of those who, even to-day, would pretend, as did Mesmer and his followers, to hold that magnetic passes are the panacea of all the ills of humanity, yet would we not doubt that hypnotism, when properly employed, may have a real curative activity. The reports on this subject are abundant, and they have been furnished by men so respectable, both in talents and learning, that we must be either skeptics or systematic opponents of truth, should we refuse to accept them.

Now, at length, after so many discussions on the mode of interpreting hypnotic facts, it is the general opinion that the explanation of them all, or of the majority of them, must be found in the *suggestion.* Paralysis, anæsthesias, contractures, hallucinal states, modifications of ideations, memory, sentiments, personality, and even the production of hypnosis itself, would seem to be no other than a result of the suggestion, that is, of a special condition of the brain, which renders the individual fitted to undergo the influence of the sensorial impressions which he receives from the external world, and that of the ideas suggested to him by another

* Translated from the *Archivio Italiano.* Milan. September, 1890.

person. When considered in this sense, the suggestion does not represent a new phenomenon of the organism; rather indeed we have occasion to observe it at any time in ordinary practical life, and it exhibits numerous phenomena, both normal and pathological, which are produced and propagated in social life.

Therapeutic suggestion may be practiced in two ways — either during the waking or the hypnotic state. The former method is as old as medicine itself, and to it many medicines are indebted for their efficiency, if we take into account the moral influence of those who prescribe them over their own patients. Therapeutic suggestion during hypnosis, does not represent any recent discovery, though it has an essentially new side in the experimental scientific direction which it has received from modern studies on *hypnotism*.

Hypnotic suggestion, made with a curative purpose, is based on the psycho-physiological conditions of the brain, which are induced by hypnosis, for in hypnotized persons, spontaneous mental activity and volitional potency disappear, and there enters a state of *monoidism*, or, to speak with more exactness, a state of *oligoidism*, which renders the subject obedient to the person who directs him, and hence he is better adapted to undergo the suggestive influence.

Therapeutic hypnotic suggestion, in the field of neuropathology, already numbers some good results. It has been found useful in cases of neuralgia, hystero-epileptic convulsions, hysterical paralysis and contractures, anæsthesias and hysterical vomitings, obstinate headache and chorea. Medical literature abounds with such cases, and they demonstrate, in the aggregate, that hypnotic suggestion may be efficacious in the neuroses generally; that is, in those affections which do not present any anatomo-pathological substratum. Our illustrious fellow countryman, Vizioli, in a very valuable little work on therapeutic suggestion, states that it finds its true indication in those forms of disturbance of the nervous system called dynamic.

But coming more particularly to the theme which forms the object of this report—that is, *to the employments of therapeutic suggestion in mental diseases*, the Commission has judged it opportune to enter more specially into examination of the question *whether it may be effected by means of hypnosis.*

It is certain that on first sight no method of cure can appear, as does hypnotic suggestion, of so rational applicability in the

treatment of the psychopathies, or destined to secure such grand results. In fact, if in an individual of sound mind one succeeds, by suggestions made with an experimental object, during hypnosis, in provoking profound disturbances of the intellect, changes of personality and of character, hallucinal states, disorder of memory, ideas and actions so impulsive as to constitute actual psychopathic artificial states, why should we not, in insane persons, by means of suggestion, succeed in canceling delirious ideas and abolishing psycho-sensorial disorders, modifying the instincts and the perverted affections, and, in a word, re-establishing the psychical personality, which has been changed by the mental malady? This reasoning is clear, manifest, and it would seem that the principle of *similia similibus* must in this case find one of its most splendid applications.

But let us now examine the facts and see what experience teaches regarding this means of cure as applied to the psychopathies, laying under contribution, for this purpose, the observances heretofore detailed, and the results of our own experiments.

To Voisin is due the merit of having first called attention to the appliance of hypnotism in the treatment of the psychopathies. In a series of scientific communications he has from time to time published cases which have shown surprising results. By means of suggestion, made during hypnosis, he witnessed the cessation of agitation, and obtained the disappearance of hallucination, delirious ideas and suicidal tendencies. Thus for example, a hysterical woman, of twenty-four years, who for eighteen months before had been unable to work, was constantly complaining, and was dominated by the dread of becoming insane, and of being a disgrace to her family, was cured of this morbid state in one month by means of hypnotic suggestion. In another woman of twenty-one years, there disappeared an erotic delirium that was associated with hallucinations of sight and hearing, which had lasted for some time. Several patients affected with amenorrhœa and mental disturbances, obtained by means of opportune suggestions the restoration of their monthly courses. But still more singular appear the effects obtained by Voisin in cases of dipsomania. We shall here record them briefly. In a man of thirty-five years, for ten years past affected with dipsomania, the excesses of which were repeated twice every month, and lasted for ten days continuously, complete cessation of these fits took place after two hypnotic sittings. A lady of forty-two years had, for four or

five years, felt an excessive desire for drink when her monthly periods came round, and she had gone so far as to take five or six bottles of wine daily, and a certain quantity of brandy. She had become lean, pale and irascible, and had agitated sleep. During hypnosis it was suggested to her that she would sleep tranquilly in the night, in the interval between meals would feel no need of drink, and that at each meal only half a bottle of wine would be required. After a few sittings these suggestions had a salutary effect and the lady left off her alcoholic habits. The same result was obtained in a lady of thirty-one years, who for several years before had been assailed every eight or ten days by a mania for drink several times every month.

It is truly remarkable in these cases to see with what facility hypnotic suggestion succeeded in overcoming a malady so grave and obstinate in its degenerative nature as dipsomania certainly is; and therefore we cannot free ourselves from the apprehension that the efficiency of the cure will fail to prove enduring, and that the patients will again yield to the drink stimulus, which will act in them as an *auto-suggestion*, more powerful perhaps, and more effective than the negative suggestion received by them.

Recently Forel, of Zurich, suggested to four individuals, affected with alcoholism, that they would completely change their mode of life, and take part in a temperance society; and in fact they did so. But he does not tell us whether they have faithfully retained the suggestion received by them.

Encouraged by the results of Voisin and Forel, Ladame, of Geneva, applied hypnotic suggestion in three cases of alcoholism. In one he obtained, from a few sittings, the cure of the dipsomaniac fits; in the second an improvement, and in the third no benefit. He then remarks that suggestion made during hypnosis does not substantially differ from that to which a drunkard subjects himself when he is admitted into a temperance society, and pledges himself to abstain from drink. Hypnotism, in such cases, simply favors the good intentions suggested to the alcoholist.

Castelli and Lombraso relate the case of a girl affected with grand hysteria, who, after a mental distress, became melancholy, with delirious ideas, refusal of food, and agitation. She was cured by suggestion; and by the same means a severe headache and paresis in the right lower limb were removed. Bernheim, in his ample case histories, furnishes some observations of hysteric disturbances cured by suggestion.

Bremand, by a single sitting of hypnotic suggestion, cured a woman of twenty-five years, who, after child-birth, became sad and felt aversion towards her husband and children, and manifested ideas of damnation. The same author was enabled to obtain, by means of suggestions made during hypnotic sleep, the cure of a man of forty years, who had abandoned himself to the abuse of alcohol and morphia, which had given origin to terrifying hallucinal states, with insomnia, agitation, refusal of food and attempts at suicide.

In the collection of facts of suggestive treatment, published by Fontan and Segard, we find related three cases of alcoholic psychosis and one of hysterical insanity, cured by hypnotic suggestion. Séglas subjected to hypnotism a hysterical woman who had for a long time been fruitlessly treated by ordinary means; she was cured of a melancholic delirium, which was associated with insomnia, suicidal tendencies and terrific hallucinations.

Peronnet, by hypnosis and suggestion, obtained the cure of a woman who was under a seizure of hysterical mania. In the Phreniatric Congress of Siena, Ventra communicated the case of a girl affected with hysterical insanity and hemiparesis and hemianæsthesia of the right side. After hypnotic suggestion these morbid phenomena disappeared.

In some cases of hysterical psychosis Forel found hypnosis, either alone, or associated with suggestion, useful in inducing sleep and quietude.

Amadei by this means cured a woman affected for two years with hysteric dumbness, and Dumontpallier saw an attack of lypemania pass away, after a single sitting, in a hystero-epileptic woman.

In the meantime, after the examination of these cases, we come to the conclusion that hypnotic therapeutic suggestion may be effective in dipsomania and the psychoses which are based on hysteria. But when we enter on examination of the trials made by several observers who have employed hypnotic suggestion as a method of cure in other forms of mental disease, we discover that, with exception of a few cases, they have obtained no favorable results.

Obersteiner asserts that the insane are, in general, very difficult of hypnotization, and that hypnosis appeared effective almost exclusively in the functional neuroses. Ventra asserts that he found it impossible, notwithstanding repeated and patient trials, to obtain the hypnotic sleep in any psychopathic form, excepting that of hysteric origin.

Vizioli tried, without effect, in a case of melancholic delirium, almost all the known means hitherto employed for provoking the hypnotic sleep, and he too admits the refractibility of the insane to hypnotism. Danillo observed that hypnotic sittings were without any result in the insane, and that paranoiacs when hypnotized did not in the least yield to the suggestions made to combat their delirious ideas and hallucinations.

Bernheim, Bottez and Mall likewise, and all who have latterly specially engaged in the study of hypnotism, admit that it is very difficult to hypnotize an insane person.

Forel has been more fortunate in his results, as, in thirty-eight insane persons, he obtained hypnosis twenty-five times, viz.: in five cases of alcoholism, in one of nymphomania, in one of imbecility with periods of agitation, in one of mania periodic, during the interval of tranquillity, in five of hysteria, in four of slight melancholy, in two of epilepsy, in four of chronic hallucination, and in one of hypochondriac insanity. But as regards the therapeutic results, they appear to us, from the report given by the author, rather inappreciable; and though in some of the cases they may have been obtained, we are permitted to doubt as to their duration. We have received confirmation of the doubt in reading the report of the First International Congress on Hypnotism, held in Paris, in August, 1889. In one of the sessions Forel asserted that he had not obtained results equal to those of Voisin, in therapeutic hypnotic suggestion in mental diseases. He had never succeeded in modifying the delirious ideas of any patient, in true melancholy, nor in changing its course.

In a communication made by Herter to the Medical Society of New York, he states that he was present at the experiments made in the lunatic asylum of Zurich, but no durable benefit was derived from them. Most of the trials were made on paranoiacs; the disappearance of hallucinations sometimes attained, was only transient.

Hypnotic suggestion was proposed in France by Berillon, as a means of moral education, in order to control certain morbid instincts of vicious and degenerate children against which the usual methods of education were found to be powerless; and in some cases related by him and by others, it was effective.

Our countryman, Algeri, who tried hypnotism on twenty-four insane criminals, observed in seven of them more or less obvious

phenomena of hypnotic sleep, and in one who had been condemned for corrupt acts and perversion of the sexual instinct, a complete change was obtained by means of hypnotic suggestions tried on him for the purpose of abolishing his morbid passion.

We have thus related all that, as far as has come to our knowledge, has been stated by different authors in relation to hypnosis and hypnotic suggestion, as applied to the psychopathies. We shall now give the results of our own experiments.

It would be superfluous to enter into a description of the methods adopted by us for the production of hypnosis, for we used the various processes which we found described in the most recent manuals on hypnotism. Most usually, however, we had recourse to fixation of the look, requesting the subject to fix his eyes on a small glass ball applied on the middle of the forehead (!) In some cases we made passes and light pressure on the eyeballs. In addition to these means we frequently ordered silence and immobility, and insinuated to the patients that they must sleep, hoping thus to be able more easily to obtain the hypnotic state. But we must promptly declare that we were deluded in our expectations, for all the trials, made on a large scale on our insane to obtain hypnosis, proved fruitless, no matter what process we employed, or however often the hypnotic sittings were repeated with all possible precautions.

These results should not surprise us if we but for a moment reflect on the conditions that favor and determine the action of hypnotic practices. It is in fact indispensable that the subject should be calm during the experiment, and (as Bernheim observed and has stated in the recent international congress in Paris), he must be convinced of the influence of the hypnotizer and of the advantages of the hypnotic treatment, and that he should concentrate all his mental activity and all his attention on the idea that he will sleep. Thus it happens that an auto-suggestion of the individual is operating, to which the proximate cause of hypnotic sleep is attributable.

Instead of this, an insane person presents in general, conditions in complete opposition to those which favor the action of hypnotic processes; for it frequently happens, from the nature of his malady, that he is incapable of perceiving external impressions and is found in a state of mental excitement, or is dominated by psycho-sensorial disturbances, delusions and ideas that deprive him of the power of fixing his attention, and thus render abortive every attempt made for the obtainment of psychosis.

Bernheim observes that hypnosis does not depend on the experimenter, but on the confidence of the subject in the operator who enjoins on him to sleep. No one can be hypnotized against his own will if he resists the command.

We have observed that the hypochondriacal and melancholic are refractory to the hypnotic process, although in them the intellectual faculties, properly so-called, are less disturbed than the affective and emotional. They very rarely become influenced, and they assert that no means whatever can suffice to remove their sufferings; they have lost all confidence, and this auto-suggestion is stronger and more effective than the suggestion of the operator to combat their mental disturbances.

The subjects selected for our experiments numbered 55, viz.: 30 women and 25 men, almost all between 20 and 50 years of age. Of these, 8 men and 4 women were affected with slight mania, 9 men and 9 women with melancholia, 6 women with hysterical phrenosis, 8 men and 7 women with epileptic phrenosis, 2 men and 2 women with fixed ideas, 3 men and 2 women with paranoia.

We took the most typical of the phrenopathies and repeated on all throughout many sittings, the processes necessary for producing hypnosis, thus placing the subjects under the so-called magnetic education. We omitted nothing which might crown experiments that cost us so much time and patience, with some gratifying success.

In our 25 men we succeeded in obtaining success only twice, *i. e.*, in one epileptic and one lypemaniac; yet some among these presented conditions apparently favourable to the securing of sleep, as they were docile, fixed their eyes long on the glass ball, and were able to understand the suggestion that they must sleep.

Of the 30 women only 8 underwent the hypnotic influence, and it was remarkable that of these 1 was affected with lypemania, 3 were hysterical, and 4 epileptic. In the cases of mania, though with very slight mental excitement, fixed ideas (suicidal, eternal damnation, hypochondria), and paranoia, no result was obtained.

As to the duration of the hypnosis, we observed that it was ordinarily short. The subjects continued asleep for only a few minutes. In only two of the hysterical the hypnosis was prolonged for sometime. As regards the degree of hypnosis reached in those who slept, we have to observe that however often the sittings were repeated, we succeeded only three times, that is, in two hystericals and one epileptic, in provoking the state of som-

nambulism (thus justifying the classification of Bernheim); that is to say, that state in which there is a profound sleep, associated with amnesia. In all the other cases there was hypnosis, but in a very slight degree: the subject kept the eyelids closed, opened them with difficulty, replied to questions, and was conscious of his surroundings,—in a word, he presented a sort of waking sleep (*dormioeglia*). We never observed any cataleptic phenomena.

When we obtained hypnosis we tried to apply suggestions with a therapeutic view. The results were as follows: To a hysterical girl, who for a long time had been affected with pains in the ankles, and hyperæsthesia in the groin, and would never get out of bed, being also of bad disposition, extravagant, egotistic, and addicted to masturbation, we made, at various times, the suggestion that she would, during the hypnosis, which was readily obtained, and in a profound degree, be perfectly cured of her disturbances, get out of bed every day, become good and affectionate, and abandon her bad habits; but our suggestion failed to secure the desired results.

We had a hysterical woman with sensitive sensorial hemianæsthesia on the right side, ovarian hyperæsthesia and convulsions. For some days before she had been subject, in the afternoons, to attacks of abdominal tympanism, with strong general agitation and hallucinal states. She was readily hypnotized by fixation of the look; and several times she went to sleep, while she was either in the normal state, or under the excess above mentioned, when it was suggested to her that she was cured of her troubles, and that they would not return. The attacks continued to come, despite the repeated hypnotic sittings: but one fine day they disappeared, when she had not for sometime been subjected to the hypnotic processes.

In this case, however, as in the preceding one, we must state that by the hypnosis alone we succeeded in producing a state of calm which lasted sometime.

In another hysterical woman (*hysteria minor*) we obtained hypnosis, but the suggestions did not succeed. We suggested to another melancholic, in whom the hypnosis was slight, that she would abandon her suicidal ideas, and to a lypemaniac woman that she would drive out of her mind her delirious ideas about criminality and refusal of food; both, however, resisted our commands. Afterwards we tried the post-hypnotic suggestion on a woman, telling her that she would sleep for a certain time, at a

fixed hour. The experiment failed. On eight men and seven women, affected with epileptic insanity, we obtained hypnosis five times,—viz., in one man and four women. One of the latter fell promptly into the hypnotic sleep, but after a few sittings we were obliged to suspend the experiments, because the hypnosis provoked general convulsive fits, with a state of contracture, which continued for some time after the patient was awakened.

In therapeutic suggestions, practiced on other patients, we limited our purpose to the decrease of the convulsive fits, which, especially in one man and two women, occurred with great frequency; but from comparison of the number and the intensity of the convulsions within the period in which we practiced the hypnosis, which those of the period in which we did not use it, we found no appreciable difference.

The observances hitherto reported by me were made in the Asylum of Imola, with the polite permission of Dr. Lolli, the distinguished director, and with the assistance of several physicians. who are accustomed to visit there, to whom I return my thanks.

The talented Dr. Tunajoli, as a member of the Commission, made the like experiments in the asylum of Siena, following the same method. I now give the results obtained by him:

"My experiments in therapeutic suggestion during hypnosis were made more especially on hysterical subjects. Two epileptics were however subjected to them, but I did not obtain hypnosis in them by the various methods put in practice. In the hystericals, I readily obtained the hypnotic sleep. In only a few of these who were quite destitute of intelligence, or were unwilling to submit to the operations, did the experiments totally fail. The hypnosis obtained was in a degree sometimes more or less intense; once only we observed somnambulism, during which the subject could be suggested. In two hystericals we observed cataleptic phenomena, during which we were able to give to the subject the most strange poses; from the cataleptic state, in one case, she passed over to the lethargia, on our compressing the sinciput, and then to somnambulism on our opening the eyelids and lightly pressing the eyeballs. In another case the patient seemed to pass to the somnambulic state, but some cataleptic phenomena persisted. Whether during the cataleptic state or the somnambulic, my hystericals talked, replied to questions put to them, understood quite well whatever was imposed on them, and repeated in words whatever they were ordered to do, but generally this *suggestion*

had no effect; only once was I able to witness a suggestive act verified at distance (? of time).

"The case was that of a hysterical young woman, a house attendant in the asylum. She was seized with convulsive fits several times daily, and in addition to common phenomena of the grand hysteria, she had constant ischuria and luxation of the lower jaw every time the fit occurred. She readily and willingly yielded to the hypnotic processes, in full confidence of being thus cured of her malady. It was quite enough to fix her look for two or three minutes, in order to cause her to present, now the cataleptic state, and again the lethargic, from which she passed over to the somnambulic, by means of opening the eyelids, or by compression of the eyeballs, as before mentioned. In this state she talked, and was at such times susceptible of suggestion. The first time she was hypnotized by me, I made the suggestion that she must urinate a quarter of an hour after awaking, and at the appointed time, she left her companions, with whom she was conversing, went to the latrine and was able to urinate. She continued to have no need of the catheter for four days, but after this time, the ischuria returned. Being again hypnotized several times, she did not again respond to the suggestion, and instead it became necessary to avoid all hypnotic experimentation, because it provoked grave convulsions.

"But after an interval of three or four months from the time in which the above experiments were made on this young woman, I wished to try hypnotism on her, as an anæsthetic, because of a particular fact which I shall state briefly. Having been obliged to use the catheter on her several times daily, on one occasion when the medical attendant was withdrawing the instrument, a strong contraction of the neck of the bladder disjoined the end, and it was left in.

"The instrument was one which had a juncture that made it serve for either sex. In order to extract the foreign body from the bladder, I decided to have recourse to hypnosis, and I used the dilators of Simon to enable me to pass in the index finger, and on this as a guide to introduce the polypus forceps. The hypnotized patient however was awaked by the passage of the second dilator, thus showing the great difference between the hypnotic sleep and that produced by chloroform. The extremity of the catheter was extracted, but not without pain to the patient.

"Of the other cases I do not speak, because they had no results

favorable to suggestive therapeutics, and therefore I have been led to hold that in mental diseases this appliance, during hypnosis, is destined to effect very little good."

Thus ends the report of Dr. Funajoli. The brilliant Professor Bianchi, another member of the Commission appointed for the study of this subject, made experiments in the clinique of Palermo, and he obtained results in perfect harmony with mine; these will be the subject of a valuable work of one of his pupils.

Summarizing now the results of our experiments, it appears that hypnosis was most readily obtained in cases of hysterical insanity, and in a few cases of epileptic insanity, but in other forms of mental alienation, despite our proceeding in accord with all the experimental rules, hypnosis, excepting in one case of anxious melancholy, was impossible. As regards therapeutic suggestion, made during the hypnosis, we are unable to report any actual results, excepting the case of hysterial ischuria described by Funajoli, though in some cases the hypnosis reached the degree of somnambulism, in which, according to Bernheim and others, the greatest susceptibility of the sleeper was observed. If, therefore, we may judge collectively of the result of our researches and of those made by the observers cited by us, we must conclude that a suggestive hypnotic therapeusis cannot be established, in the form of any general rule, as a means of cure in mental diseases. It seemed to be effective almost exclusively in cases in which the psychopathic phenomena were connected with an hysterical neurosis, or in dipsomania. In these special conditions of the psyche, it seems that hypnosis is obtained with sufficient facility, and the suggestion succeeds in modifying the characters, bridling the impulses and bad habits, reviving the affections and sentiments and removing morbid ideas. On the other hand, in the acute and chronic forms of paranoia, in states of mental weakening with delirious ideas, in grave forms of melancholia and mania, it is of very rare occurrence, if not impossible, that hypnosis is obtained, and that the suggestion alone succeeds in effecting the disappearance as the amelioration of those morbid phenomena which are the consequence of an abnormal organization, or of profound alterations in the cerebral mass.

Before proceeding farther in our consideration of therapeutic suggestion, we must observe that hypnotism should be prudently employed, for, like every other remedy, though it may present advantages, it also has its dangers, according to the subjects acted

on, or better to say, according to special idiosyncracies. We have not many experiments enabling us definitely to assert that its effects are hurtful in mental diseases. We have stated that in one case of epilepsy observed by us, and in one of hysteria observed by Funajoli, hypnosis provoked convulsions. It has also been remarked that hypnotic operations have frequently aggravated hysterical states, or have provoked them in a grave form. In this relation we recall the fact that De Giovanni and Morselli informed the Phreniatric Congress of Voghera of the injurious effects sometimes resulting from hypnotic manœuvres, in women affected with hysteria. We may also add that Séglas and Briard saw hysterical manifestations, with mental excitement and terrific hallucinations, in two women subjected to the hypnotic practices of a public magnetizer. These women were delighted when they could be hypnotized, and they contrived every pretext to be often put asleep, or in fact they diverted themselves in operating on each other. Dr. Fiegerio described the case of a young woman who became affected with spontaneous hypnotism, accompanied by impulsive tendencies to strike and destroy, after having been subjected to the experiments of the famous Donato. Mendal observed a similar fact.

These observances show that hypnotic therapeusis may prove hurtful, therefore they ought to be abandoned on the first signs of a bad result.

Whenever we desire to establish the efficacy of a medicine, we take into account, not only its useful effects, but likewise the duration of them. Very well, as regards this point, it appears that suggestive hypnosis has generally but a transient action, and those cases are rare in which many months pass over without reappearance of the morbid phenomena.

Wishing then to determine the limits within which we may use hypnotism in mental diseases, we hold that recourse to this means should not be had when the patient does not consent to the process, and it would, therefore, be necessary to use some force to induce him to submit to the hypnotic manœuvres. When we have hypnotizable subjects, we should exclusively limit the suggestions to those necessary for combating the morbid phenomena presented. Finally, if the patient is refractory to hypnotic action, or if, when hypnotized, he is not suggestionable and he feels no benefit from simple hypnosis, he should not any longer be subjected to this method of treatment.

We would now add, that as therapeutic suggestion by means of hypnosis, is impracticable in general in brain affections, the alienistic physician should practice it outside of the hypnotic state by availing himself of that *other* effective suggestionality which *alienists* are so well able to apply in the waking state, but especially in the period of convalescence. Suggestion, understood in its wide sense, is truly the key to the curative treatment of insanity, and to it are due, almost solely, the beneficial effects of asylum seclusion. The order and discipline which the insane find in the asylum, the attention and care bestowed on them, the advice and persuasions, and sometimes the opportune reproofs of the physicians, the sight of other patients, the isolation, the amusements, all concur in forming a real suggestive atmosphere that influences favorably the symptoms and the course of psychopathic disorders, and thus it is that the feeling of dependence, on a benevolent and intelligent will, induces in them the consciousness of their own disease and the re-establishment of their psychical personality.

The suggestive therapeutic influence of the asylum is proved to us by those cases, not rarely observed, of agitated lunatics with high excitement, who become calm and orderly on entering the asylum; or of those who, suffering under melancholy with delirious ideas and psycho-sensorial disturbances, return in a short time to their normal state.

But desiring to study better the therapeutic effects of suggestion in the waking state, we methodically practiced it day after day on some of our patients in whom the capacity of attention was present. From the facts we concluded that in the cases of melancholy without delirium, especially in those based on hysteria, the best and most certain effects were obtained; and we availed of suggestion for the inducing of calm, awaking the sentiments and the torpified affections, combating delusions of culpability, and removing ideas of suicide. In two cases of fixed ideas in which we could not produce hypnosis, we tried suggestion in the waking state, but without any effect. In another case, however, that of a woman affected with the insanity of doubt, we succeeded, by repeated suggestion, in rendering less intense and distressing certain ideas of a metaphysical type, which had long tormented her. In two chronic hallucinists, who were not hypnotizable, though frequently tried, the result was negative. One of these was affected with intense visual unilateral hallucinations.

A man who was immoderately addicted to wine and capable of

drinking ten to fifteen bottles daily, having entered the asylum under a slight excitement of mind, was suggestioned that he would abandon his bad habit and would soon obtain the good effect without feeling any injury from his abstinence; he is now reduced to one bottle per day.

In some cases of stupor in the first degree, we have found suggestion made with the view of removing that state of arrest which paralyzes the will and ideation, prove effectual. In paranoiacs suggestion is always powerless in combating delirious ideas and hallucinations.

These are the results which we have obtained from suggestion, methodically carried out in the waking state. When, however, we succeed by suggestive therapeusis, employed during hypnosis or in the waking state, in producing the disappearance of morbid manifestations of the psyche, we ought to be very cautious in declaring recovery, for after the suggestive practices, reproduction of the disturbances may take place.

The results of therapeutic suggestion in mental diseases being thus examined, it seems to us that we may assume the following principal conclusions:

1. Therapeutic hypnotic suggestion cannot be instituted as a general means of cure in the treatment of mental diseases, owing to the difficulty of hypnotizing the insane.

2. Hypnosis succeeds most readily in the hysterical and epileptic.

3. The most certain results of hypnotic therapeutic suggestion have, up to the present time, been obtained in the psychoses depending on hysteria and dipsomania.

4. Hypnotic suggestion may be employed when the insane submit to it of their own accord, and derive benefit from it. The physician should use it with great caution and take account of the hurtful effects which, in certain cases, may be produced.

5. Therapeutic suggestion made in the waking state is the most reliable and effective means of cure in mental diseases, and to it almost solely are due the beneficial effects of the asylum, which represents a real suggestive surrounding.

6. In cases of melancholia without delirium, cases of fixed ideas, cases of alcoholism and in slight forms of stupor, suggestion methodically repeated in the waking state, in order to combat the morbid phenomena, may prove effectual.

7. In the chronic forms of paranoia suggestion has never given favorable results.

ABSTRACTS AND EXTRACTS.

CASE OF CIRCULAR PARALYSIS.—Dr. Rottenbilder, of the Asylum for the Insane at Budapest, gives the history of a civil-service employé, 35 years old, whose father, an intemperate sea-captain, was suspected of having committed suicide by drowning. He became insane, with the ordinary symptoms of the maniacal stage of general paresis, on account of which he was admitted to the Asylum. There his excitement increased for some time, but after a residence of three and one half months he began to improve, and made such rapid progress that at the end of seven months he was discharged. The improvement continued at home, and at the end of a month he was able to resume his office, the duties of which he performed satisfactorily, notwithstanding some change of disposition, with increased sexual appetite, for a year. At the end of that time, he became restless, depressed, and anxious lest he should fail in his work, and it finally became necessary to re-commit him. His depression soon passed off to a considerable extent, and at the end of three months he was again removed by his wife. After five months he had a paretic seizure, from which he only partially rallied; an abscess of the thigh was followed by gangrene, pyæmia and death.

The author gives a resumé of the literature referring to similar cases, which he finds to be comparatively rare. In this case, as in others, the remission was so complete, as to throw doubt on the accuracy of the diagnosis.—*Centralblatt f. Nevenheilk., January, 1891.* W. L. W.

MYXŒDEMATOUS IDIOCY.—Bourneville, [*Progrès Médical*, Nos. 26, 27, 30, 33, 34,] reports eight new cases of this malady, five of which are personal observations. The condition is due to congenital absence of the thyroid body, and is characterized by defective mental and physical development, with an exaggerated degree of the symptoms of myxœdema in the adult. One case was classed as an imbecile; the others as idiots, although not of the extreme degree. Diagnosis is easy. The patients usually die at a comparatively early age.—*Ibid.* W. L. W.

CONDITION OF THE INTRACORTICAL FIBRES OF THE BRAIN IN DEMENTIA.—Kereval and Targoula publish in the *Progrès Médical*, 1891, No. 29, the results of their researches on this subject. They find that the medullated fibres disappear in the advanced stage of general paresis, and also in terminal dementia, from whatever cause. In both cases, the frontal lobes are most affected. The atrophy is most uniform and severe in the gyrus rectus. There was no uniformity as to the degree in which the different layers were affected. In the most advanced stage of atrophy the bundles of fibres from the corona radiata may be involved.

They could not determine any relation between this condition and macroscopic alterations, such as meningitis and adhesions. Either might exist independently of the other.—*Ibid.* W. L. W.

MORPHOLOGY OF THE EXTERNAL EAR IN THE SANE, INSANE AND DELINQUENTS.—Gradenigo, as the result of extensive investigations on this subject, finds that malformations of the external ear are proportionally much less frequent and slighter in degree in the sane than in the insane and criminals.—*Ibid.*

W. L. W.

COMMUNICATION OF PSYCHOSES.—Schlöss gives accounts of two instances of this kind. In the first, a young woman, who had shown symptoms of depression after the birth of an illegitimate child, principally in unfounded apprehensions in regard to her health, was much alarmed by an unfavorable opinion given by a physician whom she consulted, and immediately passed into a state of violent excitement, imagining that she was at the point of death, and that she had been bewitched. In a short time she communicated her delusions and excitement to the other members of the family, consisting of her father, brother and two sisters. They began a variety of superstitious and fantastic practices as a defence against witchcraft; neglected their work, barricaded themselves in the house, took no food, and made a violent resistance to the attempts of neighbors to enter. They were finally overpowered, and all brought at the same time to the asylum at Ybbs, Lower Austria. All recovered in less than two months, the patient first attacked being the last to recover. One of the sisters had a relapse at home, from which she recovered there.

In the other case, a young woman, daughter of an intemperate father and sister of an epileptic, herself of a neurotic constitution and extraordinarily intolerant of alcohol, became insane through remorse on account of a lapse from chastity. She bitterly reproached a female friend who had connived at the matter, with being the cause of her misfortune; and became so excited and violent that she was discharged by her employer, and returned to her mother. She at once persuaded her mother that she was entitled to have her lodgings kept in better repair by her landlord. As he did not satisfy them, they removed several times, never contented, and were finally found in greatest destitution and filth, in a shed which afforded little protection against the weather. They manifested violent excitement, and accused a man who had offered them shelter and food of trying to poison them.

After they were brought to the asylum, the mother seemed to be entirely under the influence of her daughter, who was tenderly devoted to her. They were finally separated because the mother was refusing food at the daughter's instigation. After the separation, the mother became quiet and contented, but without appreciation of her morbid condition. The daughter was inactive, unsocial, ate nothing but bread and liquid food, and often abstained from eating for days together.

The author is disposed to attribute such cases to the natural tendency of mankind to imitation, and more especially to strong sympathy between the persons affected, working on minds originally predisposed to insanity.—*Ibid., February, 1891.*

W. L. W.

DENTAL OBSESSION.—Dr. Galippe, a dentist, of Paris, under this title, gives histories of three cases of hypochondriacal ideas starting from comparatively trifling affections of the teeth and taking complete possession of the minds of their subjects, who were constantly going from one dentist to another, and insisting on useless or injurious operations. One patient finally succeeded in having all her teeth extracted, only to find herself in a worse condition afterwards than before. In this case, a tendency to spasmodic contraction of the jaws had existed before the extraction, and after the operation she was utterly unable to wear artificial teeth, and could not open the jaw enough to take any but liquid food. Her depression reached such a degree that she attempted suicide, and was confined for a time in an asylum for the insane. Hygienic and moral treatment alone are of use in such cases.—*Arch. de Neurol., January, 1891.* W. L. W.

FRACTURED RIBS IN THE INSANE.—A paper of much interest upon the subject of fractured ribs of the insane has been contributed to the last volume of the "St. Bartholomew's Hospital Report," by Dr. Claye Shaw. It discusses in the first place how it is that fractures occur. The author states that the detection of broken ribs in lunatics is not necessarily proof of violence on the part of an attendant, because it is difficult to imagine that attendants who know so well the consequences of being detected in any act of violence would deliberately, and for no reason, commit one so easily found out. Seemingly, it is right to say that fractures in the ribs of lunatics are not caused by hard direct blows, but by a slighter force which happens to take the patient when his body is placed at a disadvantage for resisting strain. Hence the absence of a bruise and the difficulty in finding out how these injuries occur. Dr. Shaw bases this opinion upon the fact that prize fighters rarely receive any injuries to the ribs, although immense blows may be given upon the thorax, the explanation being that the body is in a position to resist the effect of the blow. After many experiments made by himself and Mr. Stanfield, Dr. Shaw ascertained that the breaking weight of a rib—the eighth—was among males, on the right side 15 11-16th lbs., and on the left 16¼ lbs.; among women it was 10¼ lbs. on the right side, and 9½ lbs. on the left. He summarizes his results as follows:—(1) That a considerable difference is found to exist not only in the weight of the ribs on the two sides of the body, but also in the average breaking weight. (2) That the lighter rib is often found to bear the heavier weight, and that there is no proportion between the weight of the rib and the number of pounds it is capable of sustaining, whence it would appear that physical conditions of structure have more to do with the strain-resisting power than has chemical change in bones. (3) That persons suffering from disease of the heart or blood-vessels bear less strain than others. (4) That persons suffering from advanced constitutional disease, such as phthisis, may have ribs that support a strain much above the average, and hence that there is no direct relation between constitutional strength and that of the ribs. (5) That when a blow causes a fracture this is dependent not so much on the weight of the rib and its power of bearing strain as on other conditions. Lastly, he remarks that the dictum that the ribs of the insane are more brittle than those of the sane is true to a very limited extent only, and is almost confined to those

affected with degeneration of the circulatory system. He appends a table to his paper showing the weight required to cause fracture in forty-five experiments which he made.—*Medical Press and Circular, February 25, 1891.*

THE EFFECTS OF COCOAINE ON THE EXCITABILITY OF THE CORTEX.—E. Belmondo, *Lo Sperimentale*, August, 1890, (abstract in *Jour. des Connais. Med.*,) observes that contrary to the views of certain French and German experimenters cocoaine applied to the cortex only diminishes the excitability of the centres to a certain fixed degree, and that instead of acting on the motor cells, he maintains that it is the sensory cells and fibres that are modified by the poison. This hypothesis explains why cocoainization affects parts that the cocoaine itself does not touch, since the excitability of the motor cells is probably due to dynamogenic action exercised upon them by the sensory cells which will be diminished by the cocoaine. Belmondo holds that his experiments demonstrate that the so-called psycho-motor centres are really sensori-motor in their nature, as is believed by Tambourini. H. M. B.

THE ROLE OF DREAMS IN THE PRODUCTION OF DELUSIONS.—Dr. Phillippe Chaslin, *Thèse de Paris*, (*Gaz. Méd. de Paris*, No. 48, 1890.) It is recognized by all alienists that analogies exist between dreams and insanity, and a number of them have emphasized this point. Prof. Lasegue has even published a paper under the significant title, "Alcoholic delirium is not an insanity but a dream."

Although these analogies are recognized, the same cannot be said of the influence that dreams exert on the origin and evolution of insanity. This side of the question has not yet been studied as thoroughly as it undoubtedly deserves to be. M. Chaslin's thesis contains some considerations on these points that are of much interest.

It begins with a psycho-physiological review of the subject of normal dreams, which the author calls simply "the thoughts of the sleeping individual." It passes over the principal characters of the dreams, the nature of the pictures that they may unfold, the predominence of visual over auditory sensations, the possible duplication of the personality, the absence of all astonishment, the extreme activity of the faculties, the rapidity of the images, the "re-objectinations" of existing ideas, the persistence of recollection after awakening, etc., etc.

The author passes next to the study of certain special varieties of dreams, especially those of the hypnogogic period, so well studied in himself by A. Maury. He calls attention to the fact, that most frequently we have to do here with a more or less morbid condition of the brain, which impresses upon hallucinations a disagreeable and terrifying character. The dreams then become a true prognostic sign, as in infants subject to nocturnal terrors, and adults in whom nightmare is habitual. Incidentally he mentions the frequency of bad dreams in morbid conditions of the digestive apparatus and their influence in the production of the delirium of the asystolic cardiac cases.

In a third chapter he takes up the subject of persistence of the action of the

dream after awakening. After having cited some well known cases of individuals of sound mind, who, after awakening, have believed in the reality of their dreams and have even acted in accordance, he takes up the main subject of his paper, the relations of mental alienations to dreams.

These relations, as appears from the analysis of observations and opinion of various authors, may, says he, be summed up according to our present knowledge, as follows: (1.) There are conditions of insanity which resemble ordinary dreams. (2.) The dream may precede the insanity and be the point of departure of its commencement. (3.) It may continue it when once established, or reproduce it after it ceased, or be the sign of a change in the form of the morbid manifestations. (4.) It may be a sign of recovery; or it may have no connection with the insanity.

As a practical conclusion to this interesting study, M. Chaslin asks himself whether by acting on the sleep we cannot cause some inhibitory action on the manifestations of insanity. He is inclined to believe that we can, under these conditions, either cause a dream that may be antagonistic to the delusions, or, proceeding according to a definite method, even suppress the delusions. It yet remains to be established that artificial sleep can be produced in every individual; it is certainly not demonstrated in the present state of our knowledge.

H. M. B.

THE DURA MATER.—M. Trolard, *Jour. de l'Anatomie*, No. 4, 1890, (abstract in *Le Prog. Méd.* No. 2, 1891,) gives a study on certain peculiarities of the dura mater. The falx cerebri serves to keep tense the tentorium, and it also opposes the pressure which one cerebral hemisphere exerts on the other when the head is inclined to one side, but its most important function is that, in a manner, it holds the brain suspended and prevents the lower portions from being compressed by the weight of the overlying parts. An analogous protection exists for the lower portions of the cerebellum. How does the falx thus support the hemispheres? By the inter-immediation of the pia mater which, fixed firmly to the cerebral surface and also dipping into its substance, has, on the other hand, notable adhesions to the dura. On the convexity of the brain, the pia is intimately connected with the falx along the superior border of the hemisphere. The Pacchionian granulations assist in this adhesion. Taking rise in the sub-arachnoid cellular tissue, they attach themselves to the pia and going towards the dura they penetrate it and swelling, form a veritable riveting together of all the membranes. The more anterior portions of the meninges are connected by the cerebral veins and sinuses. The internal face of the hemispheres is suspended by its middle and lower portions. The middle portion is held up by granulations which pass through the openings of a net work, nearly always constant, existing in the falx at the union of its anterior third with posterior two-thirds. If the orifices of this net work are very large there is union of the pia mata of the two hemispheres. At the lower portion fibrous filaments leave the free border of the falx and attach themselves to the pia, chiefly on the larger of the ventricle of the corpus callosum. The falx, likewise, supports the pia which comes from the ventricles, and those portions which come from the grooves of the posterior portion of the hemispheres, notably, the calcarine and internal perpendicular

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fissures. The support of the cerebellum is due to the fact that the inferior plane of the collection of fibres, which is observed toward the posterior confluent, adhere to the cerebellar pia at the horizon of the anterior extremity of the superior vermis. These two united membranes join the falx below and behind the ventricular veins. M. Trolard, after having demonstrated the way in which the brain is suspended, seeks to prove that the pituitary body is a prolongation of the dura in the same way as is the fibrous envelope which lines the orbital cavity. From each side of the crista galli process on the horizontal plate of the ethmoid, we find the ethmoidal opening, which gives passage to only a very small nervous filament, and some forty orifices, of which only about a dozen are occupied by the olfactory fibres. The other openings give passage to prolongations of the dura which unite below the cribriform plate and join the sheaths of the olfactory nerves, forming a thick membrane, which is continuous with the pituitary body. M. Trolard gives an interesting anatomical detail here. He finds that the anterior portion of the olfactory lobe is lodged in a little cavity bounded as follows: within, by the crista galli process; externally, by the border of the frontal; below, by the cribriform plate; above, by a prolongation of the dura; starting from the crista galli and attached to the margin of the frontal, which limits externally the olfactory fossa. He has also observed a little falciform fold of the pia mata bounding the olfactory fossa posteriorly. He shows, also, how the falx cerebri is inserted into the foramen cœcum, and cites a case of duplicated dura mata.

H. M. B.

Cocainism.—M. Hallopeau, *Gazette Méd. de Paris*, December 6, 1890, concludes an article in which it gives an account of a case in which a single injection of hydrochlorate of cocaine, only eight milligrams, caused serious and long continued mental and physical symptoms, which he discusses briefly, with the following conclusions: (1.) A single interstitial injection of hydrochlorate of cocaine may give rise not only to immediate effects of a threatening nature, but also to prolonged and very severe disturbances. (2.) These have many analogies with those observed immediately after the injection; they consist especially in a persistent headache accompanied with profound malaise, insomnia, numbness of the limbs with attacks of weakness, vertigo and prostration, together with cerebral excitation shown by loquacity and great restlessness. (3.) The minimum doses of the drug may suffice to produce these effects. (4.) Their duration may be many months. (5.) They are especially observed in subjects possessing very excitable, nervous organizations. (6.) They can be attributed to an elective action of the poison on certain nervous centres.

H. M. B.

Nosomania.—This is the title given by Dr. Mars, *Thèse de Paris*, (abstract in *Gaz. Méd. de Paris*, No. 48, 1890,) to what he considers a special form of hypochondriacal insanity existing entirely apart from and independent of any existing mental disorder (paretic dementia, systematized delusional insanity, degenerations, alcoholism, etc.) He distinguishes it by various characters, such as the absence of suicidal tendencies, the constant desire of the subjects to be treating themselves with medicines, and their anxiety to get well, etc.,

which the editorial analyzer in the *Gaz. de Paris* considers as non-tenable and insufficient to found a species of genuine insanity. The purely hypochondriacal cases he considers to belong more properly to the neurasthenics, and holds that hypochondriacal symptoms in other cases belong to the syndrome of melancholia when not referable to any of the above mentioned forms of marked mental disorder. H. M. B.

DIFFERENTIAL DIAGNOSIS IN PSYCHIATRY.—Meynert, *Sem. Med.*, 1890, (abstracts in *Bull. de la Soc. de Méd. Ment. de Belgique*, December, 1890.) The diagnosis may be made from three points of view:

(1.) It may be simply to differentiate the state of the disease from that of psychic health. This question, apparently so simple, is sometimes very difficult. Usually the psychic disorder can be very readily recognized, but there are cases in which the diagnosis is very complicated, and it is noteworthy that it is a disorder characterized by marked and well known anatomical alterations, general paralysis, which gives most frequently occasion for errors.

(2.) Another side of the differential diagnosis consists in separating the psychic disorder from the neurosis.

(3.) It is also necessary to differentiate the different forms of psychic disease amongst themselves.

The author in studying the diagnosis of psychic disorders, takes for his point of departure, paranoia, the primitive insanity, according to Westphal. The clinical tableau of this disease contains nearly all the symptoms of psychic affections. In paranoia the delusion of persecution is combined with those of exaltation. The patients are rich, noble, powerful, &c., but they believe themselves prevented by their enemies from developing their power or enjoying their riches, but the delusions of persecutions and pride are not the first symptoms of paranoia. This disease may develop itself on the basis of hypochondria. It is at first, after a fashion, an insanity of attention. The patient watches himself in a morbid fashion, and refers everything to its relations with his own individuality; he sees dangers everywhere. In certain neuroses and in neurasthenia we likewise meet with fear of danger, but it is necessary to distinguish the fear of things from that of man. It is only the anthropomorphization of fear which constitutes paranoia. By referring everything that passes in the outer world to himself the patient develops delusions of exaltation by way of first having those of persecution.

Hypochondria is the common origin of the two delusions; it does not take its rise in the cortex, but in the cerebral axis. Here are found the vaso-motor fibres, and in fact sometimes the hypochondriacal sensation arises from the vaso-motor sensation. Thus the author knew a young man who blushed readily, and this through a series of associations brought about delusions of persecution and suicide. He thought that everyone suspected his reason for reddening, and he felt as though he was a criminal. A very frequent type of delusion of persecution is that of sexual disorder, which has for its origin neuralgic pains in the genital organs.

The delusions of persecution are often confounded with melancholia, but paranoia has nothing in common with that disorder. Melancholia is not

associated with fear, and has no direct relation with the delusions of persecution; it depends on the retardation of conductibility in the medullary mass of the brain and of motor innervation.

The combination of the state of sadness with the phenomena of arrest may be confounded with conditions of stupor. The insanity of melancholia is not the result of lack of accord with other men, but with oneself. The melancholiac accuses himself. The persecutory paranoiac accuses others. Melancholia is the psychosis of abasement in opposition to mania, which is the psychosis of exaltation. The delusions of persecution have in melancholia entirely different origin from that which creates them in paranoia.

The delusions of greatness in paranoia are likewise to be distinguished from those of progressive general paralysis. In paranoia they arise from the perversion of attention and are based on a complicated reasoning. In general paralysis the delusions of greatness are due to popular notions. Common opinion is that the rich and powerful are happy; the paralytic feels that he is happy, hence concludes that he is rich and powerful.

MYXŒDEMA.—At the session of the Soc. Méd. des Hopitaux, Paris, November 11, 1890, reported in *Progrès Médical*, No. 47, M. Merklen gave for M. Walther and himself an account of a case of myxœdema which was improved by a graft of a thyroid. The absence, either through disease or by operation, of the thyroid gland, is common in all forms of myxœdema (cachexie pachydermique of Charcot, operative myxœdema of Reverdin, cachexia strumipriva of Kocher, idiocy with pachydermic cachexia of Bourneville and Bricon). Thyroidectomy produces in animals conditions similar to those of myxœdema, while the attempts at thyroid grafting have been sufficiently successful in them to warrant their attempt in man. The facts reported by Serrano and Bettencourt (Congrès de Limoges) and others induced M. Merklen to request M. Walther to operate on a patient who had suffered for nine years with myxœdema who was shown to the society. She was almost a dwarf, (stature 1 m. 27), but her intelligence was fairly sufficient, the anterior fontenalle was closed, and menstruation occurred under the usual conditions. The myxœdema became marked at the age of thirty, was preceded for ten years by metrorrhagia, which still continued. She was also subject to epistaxis, and her gums bled easily. She came to the clinic on account of the hæmorrhages which were resistent to the usual treatment. M. Walther operated upon her in the submammary region, using the lobes of thyroid gland of a sheep. The operation was made antiseptically, and the wound healed by first intention. Three days later the hæmorrhages had ceased and have not since reappeared; this is the most notable result of the operation. Amelioration of the general condition and of the functional trouble also followed; there was an increase of the red globules of the blood and of the urea in the urine; in short there was a general improvement. The grafted gland has diminished a little in volume, but it could not be said that it was actually atrophying.

RUDIMENTARY PARANOIA.—Appollonio (Brochare, 1889,) abstract in the *Progrès Méd.*, No. 31, 1890, considers that fixed ideas have the same origin as neurasthenia. They are like the latter, the result of a functional hyperexcitability of functioning nervous elements. Only that while the hyperexcitability is diffused in neurasthenia it is circumscribed in systematized insanity, and causes disorders according as this or that part of the cerebral cortex is involved. Fixed ideas are therefore only a special localization of neurasthenia.

THE EFFECTS OF INTESTINAL ANTISEPSIA ON THE CUTANEOUS MANIFESTATIONS OF BROMISM AND OF BORAX.—M. Féré calls attention to the fact that he had demonstrated that naphthol given internally produces very favorable effects upon the ulcerations produced by the bromides, and that it permits prolonged employment of these agents with security against the ordinary skin complications. He claims that as much as sixteen or seventeen grammes of the bromides may be given daily under these conditions.

Borax, which is also employed in the treatment of epilepsy, has produced psoriasis, as has been observed by Gowers, and sometimes eczema, as M. Féré himself observed. These cutaneous disorders, which like those of bromism appear to be connected with some gastric difficulties, are likewise suppressed by the simultaneous usage of naphthol.

SPECIAL FORM OF MELANCHOLIA IN CONVICTS.—Dr. Charpentier, *La Méd. Moderne*, (abstract in *Bull. de la Soc. de Méd. Ment. de Belgique*, December, 1890.) The author has observed in certain convicts a special form of melancholia, not antedating their crime and having no connection with it, but intimately related to fear of its punishment. It is not common in old criminals, but appears in those who are habitually law abiding, who have been arrested for minor offences. It is met with in neurotic individuals who have been subject to habitual headaches, are extremely impressionable and have had convulsions in infancy.

The form their melancholia takes is a mixture of sincerity and dissimulation. On examination they are timid, apprehensive and restless, respond slowly to questions asked them, appear not to understand them, and affect impatience when interrogated as to the cause of their arrest. They complain of being accused of crimes they have not committed, or they do not understand. They have, therefore, weakness of the moral sense and some confusion of the intellect, to which are added sometimes mystical notions and suicidal ideas. These last necessitate their confinement, and then these individuals endeavor to derive advantage from their condition and exaggerate them in the hope of benefiting themselves, and they become better when compassion has been excited, and they are released.

CHILDREN OF DRUNKARDS.—Dr. L. Grenier, (*Thèse de Paris*) *Gaz. Méd. de Paris*, February 7, 1891, on the basis of 188 observations of individuals whose parents were subject to alcoholism, amongst other interesting facts states that

it appears that the morbid influence of the parents on the child, is greatest when conception takes place at the time when one or the other of the parents is in a condition of drunkenness. The children of drunkards have a decided propensity to similar excesses, and a large proportion of them, about one-half according to the author's statistics, become drunkards. The majority of these children suffer from convulsion in early infancy. Epilepsy is the neurosis that we may consider is almost characteristic of alcoholism of the parents, when it is not directly inherited itself, or is the sign of a general neuropathic heredity. From their mental condition, the children of intemperate parents are more liable than others to become insane, and for this reason they furnish an enormous contingent of the insane population. Every form of insanity may be observed amongst them. Alcoholic insanity is more frequent amongst the descendants of intemperate parents than it is amongst the latter themselves. This is another evidence of their intellectual degeneracy.

MEDICO-LEGAL CASE OF COCAINE HABIT.—Reported by Lewin at the November session of the Berliner Gesellschaft für Psychiatrie und Nervenkrankheiten. The subject was a man, 27 years old, with hereditary predisposition to insanity, and of intemperate habits. Formed the habit of using cocaine through a medical prescription for a nasal trouble; had used five grammes daily for two or three years, and for the last year ten grammes [two and one-half drachms] daily. He suffered from hallucinations. When he awoke, he always saw a white form standing before him. He thought he could see through the wall of his room; could see the actions of people beyond the wall, "saw their voices"—that is, was aware, by the movements of their lips, that they addressed unintelligible words to him. He was nevertheless able to go on with his business, and his nutrition was unimpaired. He twice committed assaults, according to his statement, under the influence of hallucinations, which, however, the reporter did not credit as to the second instance. He was inclined to consider it a case of cocaine-epilepsy, on account of the suddenness of attacks of rage, and a certain degree of amnesia.

In the discussion which followed, the supposition of cocaine-epilepsy did not meet with much favor, and, in view of the patient's hereditary predisposition and intemperate habits, it was thought doubtful how much of his mental derangement should be attributed to cocaine.—*Centralblatt f. Nervenheilk., December, 1891.* W. L. W.

SYPHILIS IN THE ETIOLOGY OF GENERAL PARESIS.—This subject was discussed in the National Congress of Alienists at Rouen, August, 1890, eliciting, as usual, the widest divergence of opinions, supported by statistics. In general, it may be said that those who denied the importance of syphilis in this connection insisted on the necessity of finding syphilitic lesions; while those who took the opposite view depended largely on the history of their cases.—*Ibid.* W. L. W.

SPECIAL ASYLUMS FOR INSANE CRIMINALS.—Discussed at the same meeting. It was unanimously agreed that criminals who became insane should be treated in separate institutions. A large majority opposed the separate treatment of those who had committed crime while insane.—*Ibid.* W. L. W.

CASE OF COCAINISM.—Reported at the same meeting by Saury, of Paris. An officer, 32 years old, opium smoker, morphine and cocaine habitué. Insomnia, emaciation, hallucinations of hearing, delusions of persecution and jealousy, with disposition to violence towards his wife. After injection of cocaine he had an irresistible impulse to open the little abscesses, because he imagined that he saw worms moving in them; saw black specks in the milk that he drank. The hallucinations disappeared in the Asylum; reappeared after his release, on resumption of his former habits, and disappeared again as soon as he was deprived of cocaine. There was no alcoholism.

Séglas, of Paris, had observed disturbances of sensibility in a cocaine taker. He imagined that he had little insects in his skin, and tried to remove them with a needle; saw the same insects on other people.—*Ibid.* W. L. W.

ATROPHY OF THE THYROID BODY IN IDIOTS.—Mordret, of Le Mans, on the same occasion, reported on the state of the thyroid body in 151 imbeciles and idiots, as determined by palpation. He found it atrophic in six out of thirty-six cases of slight imbecility, in nine out of forty imbeciles, in ten out of thirty-eight "simple" idiots, and nineteen out of thirty-seven complete idiots. He thought this was not a mere coincidence, but that the thyroid atrophy stood in a causal relation to the mental defect.

Sollier, of Paris, found these conclusions entirely opposed to what he had observed in almost daily autopsies of idiots during the last five years. It was impossible to reach exact results by palpation; he had never found evident atrophy or absence of the thyroid except in cases of myxœdematous idiocy.—*Ibid.* W. L. W.

CONCLUSIONS OF THE CONGRESS.—The Congress passed, at its close, the following resolutions:

1. The public provision for epileptics, idiots and cretins should be increased.
2. The appointment of assistant physicians in the asylums should be regulated and determined by law.
3. A medical inspector for each asylum is not necessary.
4. Clerical work should not be needlessly increased.
5. The cost of maintenance of the indigent insane should not be fixed by the General Council in a sovereign and unalterable manner.
6. There should be a single competitive examination at Paris for medical positions in all the asylums of France.
7. The insane should not be transported in the same manner as criminals.
8. The institutions should be surrounded by cultivated land, of sufficient extent to give employment to all suitable patients.

9. The study of psychiatry should be made easier by making the asylums more accessible to students than has heretofore been the case.—*Ibid.*

W. L. W.

Intercortical Fibres in Dementia.—Keraval and Targoula, *Progrès Médical*, 1890-29, report the result of microscopical examinations undertaken to ascertain the condition of the intercortical fibres in the later stages of general paralysis and in secondary dementia. They found that the medullated intercortical fibres disappeared, to a large extent, in the advanced stages of general paralysis, and the same was the case also in secondary dementia whatever might have been the form of the primary mental disorder. The frontal lobe is the region of the brain most involved, and in it the gyrus rectus is the portion that is invariably that which suffers most. The paracentral lobule on the other hand is the region that most generally escapes, or is least involved. As regards the different layers of the cortical substance, the morbid process extends irregularly throughout them all, excepting that they observed the latest remaining cortical medullated nerve fibres were nearest to the white substance. They also found that this process of atrophy of the fibres might extend without any necessary involvement of the meninges. Their examinations were made on twelve brains and included not less than five hundred histological specimens. Their communication is a preliminary one; a more extended memoir is to follow.

H. M. B.

Zöoanthropy from Fright.—Dr. Sigand, *Brochure Lyon*, 1890, (abstract in *Gazette Méd. de Paris*, August 30, 1890,) reports the case of a woman who was startled and frightened by the sight of an enormous snake in the field and fell unconscious. On recovering from her faint in a little while, she made her way home, but could not from that time free herself from the imaginary presence of the serpent; she thought she felt it around her neck and hissing in her ear. At the end of a month she was so affected by these morbid feelings that she began to show it in her manner, moving her body in a serpentine fashion, projecting her head forward and sticking out her tongue, becoming, as it were, a veritable serpent woman. It is an interesting observation of zoandria of echokinetic origin, and Dr. Sigand makes it the text of an interesting study of the cerebral processes that give rise to this kind of morbid imitation.

H. M. B.

The Electric Resistance in Melancholia.—At the session of the Soc. Méd. Psychologique, July 28, (reported in *Ann. Med. Pysch.* No. 11, 1890,) M. Séglas reported an interesting case of melancholia, complicated with Basedow's disease, and calls attention to the symptom pointed out by Vigouroux, of the administration of electrical resistance in exophthalmic goitre. In his patient it was very decidedly diminished. From this he was led to examine a series of melancholiacs taken at random, and he found, on the contrary, that in all of them the resistance was decidedly increased. He employed the current of ten Leclanche elements passed from the left side of the sternum to

the back of the neck and found an enormous increase in one case of up to seventy thousand ohms. He concludes as follows:

1. In melancholia, according to my observation, the electrical resistance appears to be increased, sometimes to a very considerable extent. In my patients this increase was greater in the depression than in the anxious forms, and proportional, in a measure, to the degree of the depression.

2. This increase in the electrical resistance in melancholia, may sometimes serve a useful purpose in the diagnosis in cases of a coexisting disorder like Basedow's disease, of which I have here given an example.

In reply to a question of M. Charpentier, M. Séglas stated that in his opinion this excessive resistance was not due to muscular tension. H. M. B.

Intoxications and General Paralysis.—At the session of the Société Medico-Psychologique, June 30, 1890, (*Ann. Méd. Psych.* XLVIII-II,) Dr. Charpentier read a paper, the conclusions of which are summed up as follows:

1. Aside from congestive general paralysis connected with insanities due to congestion and terminating in general paralysis, we may group under the name of general paralysis from intoxication, the pseudo-paralysis generally admitted, and add to these those due to gout, diabetes, rheumatism, tobacco and over nutrition.

2. According to our theory of general paralysis from intoxication, the order of succession of lesions is reversed; we subordinate the congestion to the interstitial proliferation, and to the primordial intoxication of the cerebral cell; this proliferation is first useful by disintoxicating the cell, and later injurious from excess of development.

3. Our theory explains the mechanism of the durability, and of death, in intoxic insanities, the incurability, the curable cases, the remissions of paresis, and the toxic dementia without the production of general paralysis.

4. General paralysis from intoxication never or rarely occurs in subjects presenting anæmic or inopexic condition of the blood, an arrest of development of the brain, convulsive neuroses, or chronic mental disorders.

5. Absence of general paralysis in these conditions is due to a modification of texture of the interstitial tissues acquired in the anæmic conditions, and congenital in the other groups of cases whence results an inaptitude of this tissue for proliferation sufficient to reproduce the lesions of general paralysis.

The nature of this modification is a desideratum which we cannot solve, since clinical observation does not give us the means of so doing. H. M. B.

Acromegaly or Marie's Disease.—The following principal characters of this disorder are taken from the *Journal de Méd. de Paris*, No. 37, 1890. In a sympathetic point of view, four series of facts or phenomena draw attention when we examine a case of acromegaly:

1. We observe the thickened, enlarged and massive hands, the soft parts of the palmar surface of which are protuberant, while the fingers are nearly the same thickness the whole length; and very curiously, neither the hands nor the fingers are specially elongated. The other portions of the arm may also be

increased in volume but in much less proportion. The same is the case with the inferior extremities.

2. As regards the cephalic extremity the face is extraordinarily changed. It is elongated and oval; the orbital ridges are greatly enlarged, the nose is often enormous, the cheeks are bulging, and the lower jaw especially is much deformed, the chin is prominent and massive, forming a marked angle, directed downward and forward, adding to the strangeness of the general aspect; while on the other hand the upper jaw is very little involved. The soft parts have also their changes, the lips are very prominent, especially the lower one; the mouth is often gaping, and the tongue, when seen, is hypertrophied both in breadth and thickness.

3. Besides these changes in the limbs and head it is necessary to mention those of the trunk, which, in certain cases, presents either cyphosis or lordosis, with a very marked protuberance in front.

4. The subjective symptoms observed at the same time are headache, pains in the bones or joints, suppression of the menses, weakness of vision, inordinate appetite and thirst, and frequently polyuria, and occasionally glycosuria. Many of the patients also complain of general feebleness and lassitude, and are depressed and sometimes have suicidal tendencies.

As a rule the disease commences during adolescence or at the commencement of adult age, often about the twentieth year. According to Marie it is never congenital. It progresses slowly with gradual hypertrophy of the extremities and face. The patient is hardly conscious of the first symptoms and the physician may be the first to notice them. Certain details excite remark; the hat, gloves or stockings become too small; the fingers too thickened for fingering the musical instrument, &c., &c.

Once established the disease progresses slowly with remissions and relapses. Little by little the hands and feet increase in volume, then the face and trunk, a veritable cachexia may appear at the later stages, and the patient succumbs sometimes to syncope and probably by cerebral compression. An undercurrent disease may cut short the disorder or it may last ten, twenty or even thirty years or more. As to the real nature of the disease we have very little positive knowledge. H. M. B.

THE URINE IN HYPNOTIZED SUBJECTS.—At the French congress of mental diseases held at Rouen last August, MM. Voisin and Haraut gave the results of their analysis. They found that if this hypnotic condition was continued for a number of days nutrition was not unfavorably affected and they conclude, contrary to MM. Gilles de la Tourette and Cathelmeau, that hypnotism is not to be considered as a pathological condition and that it may be utilized therapeutically with but little risk to the patients. H. M. B.

PUERPERAL INSANITY.—Mme. D. Gorsky, *Thèse de Paris*, (abstract in *Gaz. Méd.* No. 10,) endeavors to demonstrate that puerperal insanity is not a true etiological species, but only an active delirious phase of mental degeneracy and a neuropathic tendency. The hereditary taint and morbid predisposition are

the true cause of the disease. The puerperal state is only its immediate and exciting cause.

Out of one hundred and thirty-three cases of puerperal insanity cited by the author, twenty-one began during pregnancy, fifty-five followed parturition, and fifty-seven occurred during lactation. Thus showing that it is at child-birth and during lactation that the disease appears by preference, as has already been claimed by Marée, MacDonald and Krafft-Ebing. H. M. B.

THE CIRCULAR FORM OF GENERAL PARALYSIS.—Dr. Charles-Amable Gilles (*Thèse de Paris*) *Gaz. Méd.* No. 9, February 28, 1891, has studied the circular form of general paresis, which has hitherto been only known from a few memoirs and observations. The following are his conclusions:

1. Circular paresis is entitled to a place amongst the other clinical forms of general paralysis fully as much as the other symptomatic varieties.

It bears the same relation to circular insanity as the ambitious and hypochrondriacal forms have to the simple insanities (mania and melancholia.)

2. This clinical type appears more especially when general paresis is developed in an individual predisposed to insanity by the laws of progressive morbid heredity.

3. Remissions are more frequent than in the other forms of paresis; they constitute the lucid intervals separating two opposite phases of the disease.

4. The progress of the disease is very irregular. We often observe the retrocession of the most pronounced morbid symptoms, and the patient who appears to be in the least degree of organic or mental decrepitude, undergoes a veritable mental and physical renovation. This metamorphosis appears most prominently in connection with the development of one or the other phases of the disease. It is especially, however, in the melancholic period that we observe the intellectual and organic failure with trophic disorders. In the expansive period there is, on the other hand, more likely to be a temporary amelioration.

5. Certain conditions appear to favor the transition of one phase into the other (production of an eschar, congestive attacks, return of the menstrual period, invasion of an acute disease, etc.)

6. Circular paresis may appear suddenly after one or more attacks of simple insanity, or in the course of a true circular insanity.

7. It terminates almost invariably with death. Recovery is altogether exceptional, not to say hypothetical.

8. We meet in this circular paresis with the different types of circular insanity. Many of these types may succeed each other in the same patient in the course of the disorder. The alternating form of M. J. Falret is more frequent in the paretics than in the simpler forms.

9. The succession of opposite phases is some times interrupted by the progress of the dementia, and the symptoms become mingled in the greatest disorder.

10. In the majority of cases the duration of the disease is much longer than in the ordinary forms of paresis.

11. The circular general paresis presents certain diagnostic symptoms

that permit it to be differentiated from the other form of the disease and from circular insanity. H. M. B.

SYPHILIS AND GENERAL PARALYSIS.—In a recent memoir (annal. in *Le Progrès Médical* February 29,) MM. Morel-Lavallée and Bélières have given their results of an inquiry directed to a very large number of physicians and others in which there were proposed the following questions:

1. Does syphilis produce the clinical type of general paralysis, and if so with what special symptoms and evolution?

2. Does syphilis figure in the antecedent of general paralysis with sufficient frequency and in a manner sufficiently significant, for us to conclude that it bears the relation of cause to effect?

3. Is the general paralysis which is due to syphilis to be distinguished from the non-specific form, by any clinical or anatomical characters?

The responses to these questions are summed up as follows: The symptoms complex of general paralysis (psychic and motor phenomena) are due to a diffuse primary peri-encephalitis, which produces a cortical cerebral disorder corresponding to extensive chronic progressive lesions. The nature of these lesions makes little difference. Any extensive chronic progressive alterations of the cortical cerebral system will simulate in various degrees of resemblance general paralysis (*état paralysoide* of Lasègue; pseudo-general paralysis of Fournier). Thus syphilis when it produces cortical or deeper lesions (*foyers*) produces a syphilomatous general paralysis. This form, especially at its beginning, may be amenable to specific treatment. But the syphilitic infection may also cause a cortical meningo-cerebritis by syphilitic sclero-gummata either diffused or by an infiltration having a local origin. Generalized cortical meningo-encephalitis reproduces the symptoms and lesions and may lead to the diagnosis of general paralysis. Whatever may be the variety of the lesions there is clinically an imperfectly outlined general paralysis of syphilitic origin (*pseudo-paralyse generale, asthenie-cérébrale, tabes cérébral depressif*) which is the least curable of the forms of cerebral syphilis.

The classic general paralysis of Bayle has frequently syphilis among its antecedents, but it is impossible to refer it actually to that disease.

H. M. B.

BOOK REVIEWS.

The Soul of Man; an Investigation of the Facts of Physiological and Experimental Psychology. By Dr. PAUL CARUS. Open Court Publishing Co., Chicago: 1891.

The word soul, as ordinarily understood, is certainly supposed to represent the acme of intangibility. It is therefore a little startling, on taking up a book with this title, to find a picture of the brain stamped on its cover. And still more startling is it, on glancing within, to see not merely pictures of human brains, emphasizing details of anatomical conformation, but all manner of seemingly irrelevant illustrations, drawn from the entire range of animal existence, and even from the vegetable world. Turning from illustrations to text, we are confronted by such chapter headings as "Vitalism," "Animals and Plants," "The Nervous System of Worms, Radiates and Articulates," "Fecundation."

Truly, such pictures and such texts, under such a title, speak volumes for the iconoclasm of this generation. But they speak also in far more hopeful vein; for they tell not alone of the breaking of images, but of the making of better images. The thought of to-day never hesitates to tear down, but it loves still better to build up. And the present work follows no sceptic's ignis fatuus, floating inanely in the dark, but fixes its eye on a sun of magnitude, toward whose alluring, but, let us hope, not deceiving light, all its members turn. And this fixed star is Positivism. Its worshippers are of a school which believes that not doubt, but faith, should be the watchword of our generation; faith in the verity and veracity of the conceptions of the human mind. The advocates of this doctrine accept for the most part the logic of agnosticism, but believe that they see a step beyond the limits of the agnostic's vision. They concede most of the propositions of the dualist, but believe that beyond the dualist's horizon is an infinity where seemingly parallel entities merge into one. Beyond agnosticism they see Positivism: beyond dualism, Monism. The present work is what may be considered the official exponent of this school of thinkers. Its central doctrine is "Monistic Positivism."

But few thinkers, after reading the book, will be disposed to quarrel greatly with this, for, in the interpretation here presented, we are most of us monists now-a-days, just as we are all evolutionists. After all, though, does our monism differ so widely from the doctrines of our predecessors? Philosophy must ever march under some tangible banner: but does not the name once accepted sometimes come to obscure the meaning of the belief it is supposed to connote? What idealist, *e. g.*, ever truly doubted the existence of something that may be called matter? What "materialist" ever doubted the existence of something that you may, if you choose, call spirit? What "dualist" has not caught glimpses of a vague depth beyond his knowledge in which diversity is merged into universal harmony? What "monist" does not recognize a proximate quality of forms of existence? Even the "positivist" must in his inner soul admit that his knowledge has limitations; while the ultimate postulate of the "agnostic," in which he predicates the "Unknowable," is, in its

essence, a positive belief. The truth is simply that the broad sweep of universal harmony — of monism if you will — embraces the minds of all men of all times. Out of one original germ of protoplasm have come all the diversified organisms of to-day, and the greatest seeming changes of evolution are only variations from the type, not metamorphoses. Approximately the same have been the avenues of entrance of data granted the minds of all human organisms since the birth of philosophy. And hence approximately the same have been the limitations of abstract thought. To one generation one phase, and to another a slightly different phase of the subject has seemed most prominent, but the subject-matter itself has never greatly changed. Idealism or materialism; dualism or monism; agnosticism or positivism; it matters little which name is enscrolled on our banner, if only the trend of our philosophy is toward the heights. And such is the trend of monism as here exemplified. It teaches grand ethical lessons. It leads up to and includes that idea of God as the soul of the Cosmos, which must be regarded as the most profoundly philosophical conception that can enter the human mind.

The book before us is rather a collection of essays connected by affinity of subject than a single complete treatise; and this explains some minor inconsistencies of statement, a certain lack of synthetic sequence, and the occasional seeming interpolation of a not strictly relevant section. But these are unimportant matters. It is unfair to judge such a work as this except as a whole, and, in its entirety, this is a good, and helpful, and thought-inspiring book. It cannot be read heedlessly. Its crisp sentences challenge attention. It bristles with epigrammatic definitions of abstract terms, many of them very happily put. Its more strictly philosophical portions are peculiarly felicitous. They stir the soul of the reader. They scatter broadcast germinating thoughts.

Details of a work of such scope cannot be noted within the limits of this review. There is much, of course, that is of the nature of a synoptical compilation. But there is also much that is evidence of close logical individual thinking; not necessarily unique, but in full accord with the newest and best thought of the age. Everywhere the language is terse and incisive, and some sections are models of conciseness. To an author who could write this book at all, it would be far easier to write a dozen volumes than one, on the topics embraced. But Dr. Carus has crowded the subject-matter into one medium-sized volume. The result is a book bristling with ideas.

We cannot forbear quoting a single paragraph to illustrate the methods of style by which the book is made readable: "The purpose of thinking is adaptation to surrounding conditions. Thought, you may object, sometimes does not end in action but in the suppression of action. Inhibition, however, is an action also. Thought should always end in the regulation or adjustment of our behavior toward our surroundings. If it does not, it is not the right kind of thought. Thought for its own sake is a disease. If muscles contract neither for a special purpose nor the general purpose of exercise, we call the contraction a cramp. Thought for its own sake is a spasm of the brain."

Of the more distinctly original portions of the book, the discussion as to the meaning of pleasure and pain, is of especial interest; and the elaboration of the author's theory as to the seat of consciousness — which he locates in the lenticular nucleus — is suggestive, but not to our mind conclusive. In our

view, the great thought — the soul — of the book lies in the doctrine of the "preservation of forms." For the elaboration of this doctrine, we must refer the reader to the book itself. If he reads the chapter on "Soul-life and the Preservation of Form," he will wish to read more; and when he has read the whole, though he may not agree with all that is presented, he will surely be constrained to say, "It is a good book; I am broader and better for having read it." H. S. W.

The Mad Musings of Tom o'Bedlam. Published anonymously in England.

This little pamphlet is so exceedingly clever and so altogether delightful that one is disposed to hesitate about attempting any notice of it, other than to say "get it and read it for yourself." But lest it may not be as generally accessible as it deserves to be, we are constrained to let those who cannot secure the original catch a glimpse of it through our eyes.

"Tom o'Bedlam," it scarcely needs saying, is an impersonation. In this palpable but sufficient disguise the exceptionally sane thougthful author finds a unique vantage ground from which to glance at a few of the glaring inconsistencies of sane society. With quaint humor and a gentle irony that is irresistible, poor Tom administers to his "sane" brethren a rebuke that stings the more because of the source from which it ostensibly originates. The Church, the State, Society at large, even the Doctors (and here we wince a little, even though we are confident that behind Tom's mask sits one of our own ken) come in for a share of the ridicule. On the surface all is by-play, but beneath the surface all is serious. And, as in all humorous and ironical writing, seeming disingenuousness really exemplifies a penetrating and incisive mind.

The entire pamphlet is so quotable that we shall scarcely know where to stop if we begin quoting, but we cannot forbear a few glimpses, illustrative of the mellowed sarcasm and gentle irony with which Tom's thoughts are teeming. Witness this: "'What must I do to be sane?' A voice breaks the stillness of my padded room, 'Go thou and conform to the usages of society, and thou shalt be (accounted) sane.'" And again: "It is a great gift, that of incoherence; for next to the power to refrain from giving one's thoughts tongue at all, is the ability to so distort them in the expression that they are understood of no one save oneself."

What a unique conception of the madman's possible point of view is outlined in the following: "Your really able man knows how to make others work for him; and so I sit at ease, having every confidence in the conscientious, grimy sweaters rejoicing in the freedom of the world without. Strange that the pursuits we now despise had once the power to make us happy; and the more innocent their nature the more impotent are they. Thus it is that development improves us." The flings at certain vanities of Royalty and arrogancies of the Church are so incisive and clear that they must be seen in their entirety to be appreciated. We will therefore not attempt to make excerpts from them.

It is not to be expected that poor Tom has thoughts that in themselves are altogether new, but he certainly manages to present some delightfully fresh aspects of hackneyed topics. Observe the quaint suggestiveness of this:

"If one is human, then one is selfish; unless, indeed, one is a new born babe or lies moribund with the death-rattle in one's throat. The dawn of consciousness is likewise the daybreak of selfishness; and the dying man will pray aloud in his lucid moments in order that he may inherit peace and plenty hereafter."

Space forbids further quotations, and we must pass over altogether the dialogues of the Atoms, though they are narrated in verse that would well bear repeating. But we hope that everyone who peruses these lines will manage in some way to secure a copy of the "Mad Musings;" and we hope, further, that poor "Tom o' Bedlam" will have many more wakeful nights (since he seems to mind them so little) in which further of his thoughts will be made accessible to this most appreciative and charming amanuensis. H. S. W.

Etudes sur la rage et la méthode Pasteur, par le Dr. Lutaud, Rédacteur en chef du Journal de Médecine de Paris. 2d édition. Précédée d'une lettre de M. le Professeur Peter et contenant les statistiques complètes depuis l'inauguration de la méthode jusqu'en 1890. Paris, Journal de Médecine de Paris. 12mo; pp. x, 440. (Studies on rabies and Pasteur's method, by Dr. Lutaud, editor in chief of the Journal de Medecine de Paris. 2d. edition. Preceded by a letter of Professor Peter, and containing complete statistics from the inauguration of the method to 1890.)

This book seems to be made up of articles that have appeared in the journal of which the author is editor, put together without any regular plan, and without very much regard to consistency in anything except hostility to Pasteur and all his works. One article calls in question the existence of any such disease as rabies; another describes the deaths of patients treated after Pasteur's method, and insists that they are due to rabies and nothing else. Statistics of deaths from this disease, speeches delivered by physicians and laymen in medical, legislative and municipal bodies, attacks on Pasteur's method of treatment, on his scientific work in other departments, on his private character, on his religious beliefs or unbeliefs, on the philosophical tendencies of the germ theory, combine to make up a book which, in its tone, is far removed from the scientific spirit, and calculated to prejudice impartial readers, to say nothing of those who are in any way committed to the views which the author combats, against his opinions. This is not saying that the book is valueless. It contains a large amount of information which must have cost a good deal of trouble in the collecting, and which certainly seems to raise a presumption that the claims made by Pasteur and his admirers have been, to say the least, somewhat exaggerated. It appears evident that inoculation is not an infallible safeguard against the development of the disease, even when performed promptly, and with all the latest improvements in method; and that it is not without dangers of its own, since patients have died with symptoms of hydrophobia, after treatment for bites by animals that have failed to develop the disease. It also appears that, as might have been anticipated, cases of persons who had been bitten by non-rabid animals have entered into the statistics of inoculations, and there seems to be reason for supposing that such cases have swelled the numbers of the inoculated very considerably, from the apparent enormous increase of the disease in France since the inauguration of the Pasteur treatment, accepting the number of

patients applying for it as a criterion. During the four years in which it has been practiced, up to November, 1889, 1929 inhabitants of France had submitted to treatment. Statistics from 1850 to 1872 showed an average mortality, in France, of 30 per annum from this disease, the highest being 66, and the lowest 6. It is evident that even in the highest of these years either the number bitten must have been far below the average since the institution of the treatment—the number treated, of course, does not comprise all who were bitten during the latter period—or the mortality among the bitten must be much smaller than is generally supposed. The question of the prevalence of the disease has an important bearing on the other question, whether the number of deaths from hydrophobia has been diminished by the treatment It has not been brought below the average for preceding years, according to the statistics given. During the four years, 90 of Pasteur's patients and 64 who had not undergone his treatment were reported as dying of rabies in France—an average of nearly 39 per annum.

A Case of Intracranial Neoplasm with Localizing Eye Symptoms: Position of Tumor Verified at Autopsy. By CHARLES A. OLIVER, M. D., of Philadelphia. (Reprinted from the *Archives of Ophthalmology*, Vol. XX, No. 1, 1891.)

The patient, a man thirty-nine years old, suffered, without known cause, from vertigo, headache, weakness and numbness of right leg, and frequent tonic spasms of right arm. Later, a certain degree of hemianæsthesia, and right lateral hemianopsia were found. Ophthalmological examination revealed right hemianopsia, contraction of the remaining fields of vision, most marked in left eye, hemianopsic pupillary inaction, dilatation of the retinal blood-vessels, and a large hæmorrhage extending over the right optic disc. From these symptoms, diagnosis was made of intracranial tumor, pressing on the left optic tract.

The autopsy revealed a glioma, with beginning sarcomatous degeneration, involving the external portion of the left optic thalamus and the posterior two-thirds of the corpus striatum. The capsule is said not to have been invaded. If the internal capsule is meant, it is not easy to see how this could have been the case, unless there were two distinct tumors. The left optic tract was flattened.

A Further Study of Anodal Diffusion as a Therapeutic Agent. By FREDERICK PETERSON, M. D., Attending Physician to the New York Hospital for Nervous Diseases. (Reprinted from the *Medical Record*, January 31, 1891.)

This paper is a review of the literature of the subject since the publication of the author's previous paper in 1889, with suggestions in regard to indications and modes of application. He says nothing of any personal experience since the above date.

An Analysis of the Ocular Symptoms Found in the Third Stage of General Paralysis of the Insane. By CHARLES A. OLIVER, M. D., of Philadelphia. (Reprinted from the *Medical News*, September 20, 1890.)

This paper does not lend itself well to condensation. In addition to the well known pupillary changes, the author found diminution of the acuity of vision and of color sense in all cases in which satisfactory tests could be made, and frequent abnormalities in the ophthalmoscopic appearances, of which the most common were diminution of the capillarity of the optic nerve, reduction in size of the retinal blood vessels, especially the arteries, diminution of pigment, and a granular condition of the choroid.

Twelve Lectures on the Structure of the Central Nervous System, for Physicians and Students. By Dr. LUDWIG EDINGER, Frankfort-on-the-Main. Second revised edition, with 133 illustrations. Translated by WILLIS HALL VITTUM, M. D., St. Paul, Minn. Edited by C. EUGENE RIGGS, A. M., M. D., Professor of Mental and Nervous Diseases, University of Minnesota; Member of the American Neurological Association. Philadelphia and London: F. A. Davis, Publisher, 1890. 8vo: pp. xii, 230.

The appearance of another work on cerebral anatomy, so soon after the translation of Obersteiner's treatise on the same subject, is a gratifying evidence of the interest felt at the present time in this department of medical science. The orignal work is probably already known to some of our readers as an excellent, concise account of its subject. The second edition has been, in parts, entirely rewritten, and the whole seems to have been brought fully up to date. It embodies the results of a large amount of original research on the part of the author, especially in the line of embryology, and of extensive reading, in a compact form, and so fully illustrated as to enable the reader to follow the text understandingly without the aid of specimens. The limits of the work preclude discussion of many points, on which there is not yet universal agreement, but we have noticed only one instance in which clearness seems to have been sacrificed to condensation—the account, on page 19, of the development of the sensory ganglia, which seems rather obscure. Neither do we understand why, in the same lecture, the optic thalami have been omitted in diagrams of sagittal sections of the brains of various orders of vertebrates. These, however, are small matters. A remarkable amount of important information has been compressed into a small space, and so judiciously selected and arranged as to give an excellent general view of the most important points in this difficult branch of anatomy. The recapitulation of the courses of the various tracts of white matter in the brain and spinal cord, contained in the last lecture, is especially good.

The work of the translator has been, in all respects, well done. We have not observed any errors of translation, and the language is free from Germanisms. An introductory note by the author to the American edition will enable the most scrupulous stickler for the right of property in ideas to enjoy the book without any apprehension that he is a receiver of stolen goods. We trust that it will find a wide circle of readers.

NOTES AND COMMENTS.

PLINY EARLE, A. M., M. D.—Dr. Pliny Earle, whose portrait it is our privilege to publish in this issue, is a descendant of the sixth generation from Ralph Earle, who was one of the twenty-nine men who, in Portsmouth, R. I., on the 30th of April, 1639, acknowledged themselves to be legal subjects of King Charles, and bound themselves into a civil body politic. He is the fourth son of Pliny Earle, of Leicester, Mass., who made, in 1791, for Samuel Slater, the machine cards by which the first cotton was wrought that was spun by machinery in America, and who subsequently invented a machine by which the manufacture of such cards was greatly facilitated. His mother was the daughter of William Buffum, of Smithfield, R. I. He was born December 31, 1809, and his childhood was passed in the home of his father at Mulberry Grove. He was a pupil in Leicester Academy, and afterwards in the Friends' School, in Providence, R. I., where he was a teacher in the winter of 1828–29, and also from 1831 to 1835, when he was made principal.

He pursued the study of medicine, first with Dr. Usher Parsons, of Providence, and afterwards at the University of Pennsylvania, where he graduated with the degree of M. D. in 1837. The next two years were spent in Europe; one in the medical school and the hospitals of Paris, and the other in a tour of professional and general observation, "in which he visited various institutions for the insane, from England to Turkey." The results of these observations were published in 1840, in a pamphlet entitled "A Visit to Thirteen Asylums for the Insane in Europe." He had an office in Philadelphia for a short time, but in the spring of 1840 became resident physician of the Friends' Asylum for the Insane, near Frankford, now a part of Philadelphia. In 1844 he was appointed medical superintendent of the Bloomingdale Asylum for the Insane, in New York City. In 1849 he made another tour in Europe, visiting thirty-four institutions for the insane in England, Belgium, France and the Germanic countries, and, upon his return, published his book upon "Institutions for the Insane in Prussia, Austria, and Germany." In 1853 he was elected a visiting physician of the New York City Lunatic Asylum, on Blackwell's Island.

In 1855 he returned to Leicester for rest and the confirmation of his health, and passed several years on the homestead of his grandfather, Robert Earle, near Mulberry Grove (now called "Earle Ridge.") During this time, however, he spent the winters of 1862–63 and 1863–64 in the care of the insane soldiers of the army and navy, at the Government Hospital for the Insane near Washington, D. C., of which his former pupil, Dr. Charles H. Nichols, was superintendent. He also wrote for the medical periodicals, and acted as an expert in the trials of several important cases involving the question of insanity before the legal tribunals of Massachusetts and the adjoining States.

It was in these years of comparative rest that he rendered the town essential service as a member of the School Committee. In this period the public schools were subjected to a thorough reorganization, and new and more practical methods of instruction were introduced. In these services Dr. Earle exhibited the same executive force, the same mastery of details, the same practical wisdom, the same contempt of shams and ability to puncture them, and the same personal integrity and demand for strict uprightness and fidelity in those who were under his supervision, which characterized his administration of the institution in Northampton, of which he was afterward the head. In one respect he was in advance of the time. He came early to appreciate the importance of objective illustration, and the practical application of school instruction. He required pupils to use books only as instructors, and to know *things* and not mere *words*.

Without seeking the position, he was appointed superintendent of the State Lunatic Hospital at Northampton, Mass. July 2, 1864, and held the office twenty-one years and three months, resigning it October 1, 1885. He made that hospital in many respects a model institution for the insane; and its trustees, in the resolutions passed at the time of their acceptance of his resignation, expressed as follows not only their own conviction, but the general judgment with reference to the value of his administration: "In its management he has combined the highest professional skill and acquirement with rare executive ability. By his patient attention to details, by his wisdom and firmness, his absolute fidelity to duty and devotion to the interests of the hospital, he has rendered invaluable service to the institution, and to the community which it serves." They also express the hope that "he will continue to

make his home in the institution, that they may continue to profit by his counsels; and they will provide that his rooms shall always be open and ready for use." This offer Mr. Earle accepted, although his summers have been spent at Mulberry Grove.

The Northampton Hospital had been erected in opposition to a widely prevalent opinion that it was not, and never could be, needed,—an opinion which delayed its construction, made the obtaining of appropriations very difficult, and finally compelled the trustees to put it in operation in a very incomplete condition, internally. The Civil War had tended to restrict the price of board for public patients to a very low limit, and in 1864, when Dr. Earle took charge of it, it had never paid its current expenses. He immediately addressed himself to the task of making it not only a first-class curative institution, but a self-supporting one as well. He purchased supplies at wholesale and in open market. He reorganized and reduced to a very complete system all the departments — domestic, economical, financial and medical — with checks and counter-checks for the detection of loss, or of waste by carelessness, as well as for the exposure of unfaithfulness in the discharge of duty toward the patients, or in other respects. The so-called "moral treatment" of the patients was amplified, made more diversified, and extended over a greater portion of the year than in any other American hospital.

The pecuniary results of this system were the payment of current expenses in the second year, and, during the whole period of Dr. Earle's service, the purchase of land at a cost of over twenty-five thousand dollars; the payment for all ordinary repairs, and over one hundred and seventy-three thousand dollars for buildings and other improvements, and an increase in cash assets and provisions and supplies of over forty-three thousand dollars, all of which became, of course, the property of the State, without any assistance from the State. The results as productive of an improved curative institution, being less tangible, cannot well be illustrated, but as reflected in current public opinion, they were equally successful.

The importance of occupation for the insane was early recognized by Dr. Earle, and it has nowhere in New England been practically applied to a greater extent than at Northampton. As early as 1870 it was estimated that not less than two-thirds of the manual labor necessary to the running of the hospital was performed by patients.

Believing that a large part of the excessive cost of such hospitals as that at Danvers adds nothing to the curative capability of the institutions, Dr. Earle condemned such expenditure as unwise political economy, ostentatious charity and gross injustice to the payer of taxes.

Dr. Earle has been instrumental in introducing important changes in the treatment of the insane. In 1845 he established a school for the patients in the men's department of the Bloomingdale Asylum, and this was continued for two years. As early as 1840, while in the Frankford Asylum, he gave illustrated lectures on physics to the inmates. "This was the first known attempt to address an audience of the insane in any discourse other than a sermon, and has led to that system of entertainments for the patients now considered indispensable in a first-class hospital." At Northampton he gave a great variety of lectures upon miscellaneous subjects. One course of six lectures was upon diseases of the brain which are accompanied with mental disorder. The average number of patients who attended them was two hundred and fifty six. "This is the first time," he says in his annual report, "that an audience of insane persons ever listened to a discourse on their own malady." His observation of the effect on the audience was not unlike that of other preachers. If the listeners were slow to take the application to themselves, they were quite ready to appropriate it "to their neighbors." He also secured lectures and entertainments from other sources, and provided amusements in which the inmates participated.

Dr. Earle is the author of many papers upon insanity and other subjects, which have been published in the AMERICAN JOURNAL OF INSANITY, the *American Journal of the Medical Sciences*, etc. His first contribution to our pages was published in October, 1844. Some of these have been issued in pamphlet form. He was the intimate friend and counsellor of Dr. Amariah Brigham, the first Superintendent of the Utica Asylum and the founder of this journal. Indeed, when Dr. Brigham's health failed, Dr. Earle was strongly urged ts assume the editorship. He anticipated by many years the valuable treatise of Dr. B. Joy Jeffries, in a paper on "The Inability to Distinguish Colors." His twenty-two reports of the Northampton Hospital are classics in the literature of mental disease. By a combination of causes the public, so far as they knew or cared about the subject, had come to the belief that from seventy-five to ninety per cent. of the insane can

be cured at the hospital. Dr. Earle became convinced of the erroneousness of this belief, and was the first hospital superintendent who combated it. His researches upon the subject extended over a series of years, were embodied in his annual reports, and at length in 1887 collected and published by the J. B. Lippincott Company, in a book entitled "The Curability of Insanity."

The doctor showed that one cause of the false opinion in regard to curability was the reporting of repeated recoveries of the same person, in paroxysmal insanity. One patient was reported cured six times in one year, another seven times, a third sixteen times in three years, and a fourth forty-six times in the course of her life, and she finally died a raving maniac in one of the hospitals. Judging from the results of the doctor's researches, not one-third of the persons admitted to the Massachusetts insane hospitals have been permanently cured.

Of his work on the "Curability of Insanity," a reviewer writes: "This book may mark an epoch in the literature of insanity, since it has changed the whole front of that literature, and set in motion investigating forces which will carry out its main doctrine into many useful details upon which the veteran author has not dwelt."

He wrote the article on insanity in the United States Census of 1860, and about ninety articles of reviews and bibliographical notices of insane hospital reports and other publications on mental disorders, which appeared in the *American Journal of the Medical Sciences* between the years 1841 and 1870.

In a third visit to Europe, in 1871, he visited forty-six institutions for the insane in Ireland, Austria, Italy and intervening countries. His several foreign tours gave him opportunity to form the acquaintance and enjoy the hospitality of many professional, philanthropic and literary people; he was well acquainted with Elizabeth Fry, knew the poet Samuel Rogers, and at their own homes and tables met socially Mrs. Fry, the Howitts and Charles Dickens.

Dr. Earle was one of the original members and founders of the American Medical Association, the Association of Medical Superintendents of American Institutions for the Insane, the New York Academy of Medicine, and the New England Psychological Society, of which last mentioned association he was the first president. He was also president, in the official year 1884–85, of the Association of Superintendents. Besides holding a membership of various medical societies, he is a member of the American

Philosophical Society; fellow of the New York College of Physicians and Surgeons; corresponding member of the New York Medico-Legal Society and the Medical Society of Athens, Greece, and honorary member of the British Medico-Psychological Association. In 1853 he delivered an adjunct course of lectures on Mental Diseases at the College of Physicians and Surgeons in New York City, and in 1863 he was appointed Professor of Materia Medica and Psychological Medicine in the Berkshire Medical Institute at Pittsfield, Mass. Insanity had never before been included among the required subjects of instruction in any full professorship at any one of the American medical schools. After the delivery of one course of lectures the doctor resigned his professorship, as he had been called to the superintendency of the Northampton Hospital.

In his specialty Dr. Earle is recognized as an authority. He was one of the medical experts summoned to the trial of Charles J. Guiteau, for the murder of President Garfield, but after an attendance of one week his health gave way, and he was obliged to leave.

In 1888 he published a large volume on the genealogy of the Earle family, a work of great labor, and a model of its class. From this book many of the dates and material facts of this biography are taken. Dr. Earle still holds his birthright membership in the Society of Friends.

Dr. Earle has lived in retirement at Northampton since October, 1885. It is hoped that the day may yet be long deferred when it will be suitable to pronounce his eulogy, and give full expression to the respect and esteem in which he is universally held.

Lunacy Law in Illinois. — We are indebted to Dr. Sanger Brown for an interesting pamphlet containing a paper of proposed changes in the present lunacy law of Illinois, read at a joint session of the Chicago Medical Society and the Medico-Legal Society of Chicago, in February last, together with another paper on the same subject by Dr. H. N. Moyer, and the remarks of Drs. Brower, Dewey, Church, Earle, Graham, Kiernan and Sanger Brown, in the discussion that followed the reading.

We have long been aware of the most striking, not to say shocking, feature of the lunacy legislation of Illinois, almost alone of these United States, which requires a jury trial in open court, with the patient present, in the case of every insane person committed

to an insane asylum. The only thing lacking to assimilate this enactment to the usual procedure of criminal law, is the presentment and indictment of a grand jury, which perhaps are substituted by the affidavits necessary to bring the unfortunate disorderly person before the court.

We have said that there is no cruelty like the cruelty of ignorance; we shall have to admit that there is one form of it still more remorseless, and that is the cruelty of sentimentalism! Doctrinaire paranoiacs have indeed long been laboring for this sort of statutory folly in other States and even in Europe, in the very teeth both of science and civilization; but it has not needed the trial of an experiment to enable any person capable of *a priori* reasoning, to judge beforehand its abominable results. Really, we should have thought such a law was but the evidence of a most elementary and juvenile education in western society, were it not that we find the statute in question inherited this particular provision from another law of a very early day (1823) relating to the appointment of a guardian, or "conservator" as it is called, over a lunatic's estate. We suppose it is well understood, as has been shown by the decisions in many will cases, that in matters of property and testamentary capacity, a somewhat wider margin is allowed by Courts of Equity as to the question of unsound mind than as to the necessity of hospital treatment.

The New York law leaves to the judge his discretion to resort to the common law procedure under the writ *de lunatico inquirendo*, whenever demanded, or when sufficient occasion is shown for it; but the vast proportion of cases are such that he or any other layman would be as able to see the emergency and urgency of the fact, as he would be able to recognize and punish a flagrant case of contempt in open court. The New York law is surely stringent enough. It requires the certificate of two physicians, duly registered as having had at least three years experience, after personal examination of the patient, which certificate must be approved by a Judge of a Court of Record, who may institute further investigation, if he deem fit, and the patient, if already taken to the hospital, cannot be detained more than five days without such certificate. Moreover, all certificates are subject to close scrutiny by the State Commission in Lunacy. A wrongful commitment under this system we believe to be almost a moral impossibility. Insane persons have been sometimes discharged on *habeas corpus*, just as sane persons have been often acquitted when guilty of out-

rageous crimes, on the plea of insanity. The Illinois law has no provision in regard to such persons when not detained but discharged from the asylum as sane! Some European papers say that America is the paradise of women—by law. It is certainly more complimentary than saying it is the paradise of criminals.

But even under the British system, it was Lord Shaftesbury, we believe, who said that in more than a score thousand of cases he had not been able to find a single mistaken or wrongful commitment. There are several cases every year reported as "not insane"—persons not affected with the disease of insanity, but with such temporary delirium as that of alcoholism, the opium habit, or functional disorders.

Dr. Sanger Brown's proposals are all sensible and reasonable; though some of them show a greater deference to the popular unreasoning prejudices than would be considered necessary in this meridian. However, they are in their principal features remodeled after the law of New York.

In the discussion, Dr. Earle read a section of the new law already before the Legislature. (We have not heard whether it has been passed.) This provides that inquests shall be by jury *or* commission at discretion of the court, except when the insane person or his next friend shall demand a jury. This indeed would be a great improvement; but the judge should have the power, in cases of emergency, to direct the immediate commitment *ad interim*.

Dr. Sanger Brown testifies that the horror felt by insane persons and their relatives at the general character of legal proceedings under the present law, has led to the establishment of private institutions just outside the borders of the State, of which many avail themselves, of those who are able to afford it. Such an extraordinary state of things is only intelligible on Dr. Kiernan's statement as to a *lady* that attends the legislative sessions at Springfield and "has more power with the legislature than the entire medical fraternity of Illinois." We do not know which to commiserate most; but this sort of thing is one of those evils that will have to cure itself. If the Legislature appoints a special committee to review the whole subject, something may come of it to put the State more in line with those who have intelligent understanding of it.

We were never fond of the prevalent habit of prefacing a discussion of this branch of medicine with a description of the barbarities and ignorance of the "Dark Ages;" but a brief extract

from Dr. Archibald Church's remarks in the course of this discussion, will serve to show that our comments have not been guilty of extravagant language:

"I have seen a man suffering, unfortunately for him, from acute mania, shackled hand and foot and then placed in a great canvas sack which was tied around his neck, and in that condition, carried thirty miles to the county seat, and subsequently, on the same day, brought fifty miles to the asylum, without any opportunity to attend to the calls of nature. I have found that man one mass of bruises from the top of his head to the soles of his feet, and I have seen him succumb in six days, and I attribute it to this treatment. When you have seen such things under this law it needs no argument to show that it is not the law for this time and this community. When you have seen a woman who scarcely stood five feet high, bound and tied with forty feet of rope that had been used to tether a cow, and in that condition, held down by four men, carried in an open wagon twenty miles to be tried, and still in that condition brought to the asylum, you will realize that this law is not a beautiful thing. When you have seen a man taken from within a stone's throw of a State institution, shackled hand and foot and carried twenty miles to the county seat, struggling with all his might the entire distance, and immediately brought back the same distance in the same plight, in a closed carriage, out of which he had managed to knock all the glass, his legs sticking out of one window and his head out of the other, cut and maimed, bruised and bleeding, with scarcely any clothing left upon him, and have seen him die within twenty-four hours, you will understand that this law is not the humanitarian triumph it is claimed to be."

The Fire at the Nashville Hospital.—Once more we are called upon to record a disastrous fire in a hospital for the insane. On the night of March 13, 1891, the entire male wing of the Central Hospital for the Insane, situated near Nashville, Tennessee, was destroyed by fire, and ten patients were burned to death. The origin of the fire was in a patient's bedroom; its cause could not be ascertained. The deplorable event occurred during a dark, cold and stormy night, and with a most unfavorable wind. When discovered, at 11 o'clock, the fire was confined to one room and a hallway, but the only means at hand to fight the flames were buckets of water handed from one to another. The Nashville fire

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We were never fond of the prevalent habit of prefacing a discussion of this branch of medicine with a description of the barbarities and ignorance of the "Dark Ages;" but a brief extract

from Dr. Archibald Church's remarks in the course of this discussion, will serve to show that our comments have not been guilty of extravagant language:

"I have seen a man suffering, unfortunately for him, from acute mania, shackled hand and foot and then placed in a great canvas sack which was tied around his neck, and in that condition, carried thirty miles to the county seat, and subsequently, on the same day, brought fifty miles to the asylum, without any opportunity to attend to the calls of nature. I have found that man one mass of bruises from the top of his head to the soles of his feet, and I have seen him succumb in six days, and I attribute it to this treatment. When you have seen such things under this law it needs no argument to show that it is not the law for this time and this community. When you have seen a woman who scarcely stood five feet high, bound and tied with forty feet of rope that had been used to tether a cow, and in that condition, held down by four men, carried in an open wagon twenty miles to be tried, and still in that condition brought to the asylum, you will realize that this law is not a beautiful thing. When you have seen a man taken from within a stone's throw of a State institution, shackled hand and foot and carried twenty miles to the county seat, struggling with all his might the entire distance, and immediately brought back the same distance in the same plight, in a closed carriage, out of which he had managed to knock all the glass, his legs sticking out of one window and his head out of the other, cut and maimed, bruised and bleeding, with scarcely any clothing left upon him, and have seen him die within twenty-four hours, you will understand that this law is not the humanitarian triumph it is claimed to be."

The Fire at the Nashville Hospital.—Once more we are called upon to record a disastrous fire in a hospital for the insane. On the night of March 13, 1891, the entire male wing of the Central Hospital for the Insane, situated near Nashville, Tennessee, was destroyed by fire, and ten patients were burned to death. The origin of the fire was in a patient's bedroom; its cause could not be ascertained. The deplorable event occurred during a dark, cold and stormy night, and with a most unfavorable wind. When discovered, at 11 o'clock, the fire was confined to one room and a hallway, but the only means at hand to fight the flames were buckets of water handed from one to another. The Nashville fire

department was notified by telephone, but an engine was not on the scene until about 2.30 A. M. All of the patients were safely removed from the burning building except eight occupying rooms on the first and second floor, approach to which was prevented by flame and smoke. The lives of two others were lost by their rushing back into the flames after their rescue had been accomplished.

In an official report of the disaster to the Governor and Assembly of Tennessee, it is mentioned that temporary accommodations have been afforded the houseless unfortunates at the West Tennessee Hospital at Bolivar. Insurance was held to the amount of $75,000, and it is estimated that the building will be re-built without expense to the State. The catastrophe forcibly illustrates the necessity of having good local protection from fire, especially in institutions situated at a distance from organized fire departments.

RESIGNATION OF DR. TOBEY.—Those who have been watching the course of events at the Toledo Asylum will not be surprised to hear that its capable organizer and administrator, Dr. H. A. Tobey, has resigned his superintendency. His letter of resignation tells its own painful tale and renders further comment unnecessary:

TOLEDO, O., March 26, 1891.

To the Honorable Board of Trustees, Toledo Asylum for the Insane:

GENTLEMEN—Knowing from a recent interview with Governor Campbell that he desires some one of his own political faith to fill the position which I now occupy, and having reason to believe that should I not resign the institution would suffer a general political reorganization in order that my removal might be effected, I have deemed that the better interests of the institution would be served by my severing my connection with it; therefore, I hereby tender my resignation as superintendent of the Toledo Asylum for the Insane, to take effect at such a date as your honorable body may fix.

Respectfully yours, H. A. TOBEY.

The incidents of this resignation, as published with sensational detail in the local papers, are too humiliating and vulgar to be referred to here. Verily, Dr. Tobey is to be congratulated on having washed his hands of the nasty business.

CIVIL SERVICE EXAMINATIONS.—An open competitive examination of candidates for Junior Assistants and Female Physicians in the New York State Hospitals for the Insane, will be held by the State Civil Service Commission at the Capitol in Albany, June 11th. Candidates must be residents of the State, and must have had one year's experience in a hospital or three years' experience in the general practice of medicine.

CORRESPONDENCE.

A CHAPTER IN THE HISTORY OF THE WILLARD ASYLUM.

To the American Journal of Insanity:

The question of the care of the insane in New York has always excited an unusual degree of attention beyond her borders; second only, it may be observed, to the interest with which the subject is regarded by the citizens of the State. The large number of dependent insane persons in the State of New York requiring care, the annual increase amounting to several hundreds; the cost of construction of hospitals and care of patients according to a standard now deemed proper; the existence of alms-houses legally authorized to receive the insane of all classes in a State largely recognizing local control of county affairs; the disparity between the care furnished by State institutions, and the wretchedness and neglect which have characterized the county alms-houses, have been problems difficult of ready solution. Similar questions have arisen in all the populous States, but have not been attended with the breezy contentions that usually mark the settlement of lunacy matters in the State of New York.

In 1806, the State made its first public provision for the insane in the New York Hospital. In 1809, the Legislature granted to overseers of the poor authority to contract with the governors of the New York Hospital for the support of the insane chargeable to their towns. From this period to the opening of the State Lunatic Asylum at Utica in 1843, no public provision was made for the indigent insane except such as was furnished by alms-houses and jails. From 1843 to 1865, public attention was called to the condition of the insane in alms-houses by the publication of several official documents, namely, the Memorial of Miss Dix to the Legislature in 1844; the Memorial of the Superintendents of the Poor in 1856; the Report of the Special Committee of the Senate in 1857; and the Report of Dr. Willard, presented to the Legislature in 1865.

During the interval between 1850 and 1865, bills were introduced from time to time for the erection of additional asylums, but failed to become laws from various reasons. One of the direct results of the report of Dr. Willard was the creation of an asylum for the

chronic insane bearing his name, called the *Willard Asylum for the Insane*, but, in deference to a later sentiment, now known as the *Willard State Hospital.* Since 1865, five additional State hospitals have been erected or partly completed, making seven in all. It is probably true that the condition of the insane in alms-houses and jails, whom we will designate as the chronic insane, had much to do in influencing the Legislature and public sentiment in the creation of the majority, if not all of these institutions. The Memorial of Miss Dix, the Memorial of the Superintendents of the Poor in 1856, the Report of the Senate Committee of 1857, the Report of Dr. Willard and other documents might be cited to substantiate this statement. The information contained in these documents to the Legislature was founded upon personal examination of the insane in the jails and alms-houses and knowledge gained by inspection of these receptacles.

In 1890, the Legislature enacted what is called the "State Care Act," virtually declaring the insane poor the wards of the State, assigning districts to each asylum, abolishing the distinction between the "chronic" and "acute" cases, so disposing of the insane as to make the State hospitals the only legal receptacles for their care and treatment. This beneficent measure — a long step in advance of any previous movement worthy of study and imitation wherever improvements can be made — was brought about mainly by the efforts of the State Charities Aid Association. This law embodies all the essential principles incorporated in the act creating the Willard Asylum for the (chronic) insane with important additions, and if carried out, will accomplish all that the promoters of that measure ever desired, namely, State care and treatment of the chronic and recent cases requiring hospital detention.

It is not the purpose to enter into the details of the history of lunacy provision in New York further than to observe that all progress in this direction has been slow considering the intelligence and ability of the people of that State, and that advances have been possible only by quickening the public conscience until there was the courage to successfully attack and overthrow the county care system, strongly intrenched as it had become by long usage and official interest; a system that, whenever exposed, brought a sense of shame and indignant protest. Mention might be made of measures proposed for relief that failed, and of hospitals projected more than twenty years ago that are at this day only partly completed. Yet all the movements made, whether they were suc-

cessful or failures, are to be reckoned as successive, progressive, if not harmonious, steps, the omission of one of which might have resulted in a failure to make a further advance.

The State Commissioners of Lunacy, in their report for 1890, are disposed to attribute the evils and insufficiency of the system that has been in operation mainly to the law of 1842, providing for the organization and government of the State Lunatic Asylum at Utica. With this view of that law the writer concurs. It permitted and directed the discharge of patients not likely to recover (incurables) to make room for new cases, and authorized the admission of recent cases into the poor-houses. The practical operation of the statute imposed upon the counties the necessity of making provision for patients thus discharged, and made a distinction between the curable and incurable cases.

The law of 1842 was prepared, it has been generally understood, by the Hon. John C. Spencer, a distinguished citizen and lawyer, but with little experience to guide him in this work. It is pronounced "barbarous" in the report before us. While we take exception to the language as used, it might be interesting to know what the Commission might think of the people and the Legislature who tolerated the operations under it for a period of twenty-two years after its passage. It could have been amended at any time between the years 1843 and 1865, if there had been a disposition to do so. Any citizen, even the Commissioners as individuals before they accepted office under the recent law, might have entered a protest and petitioned to have had the objectionable clauses of the law of 1842 eliminated. The writer cannot recall any deliverance from either one of the Commissioners on this subject before the publication of their recent report, although he welcomes their great official influence and zeal toward the firm establishment of the "State Care Act." The influence of this humane and comprehensive scheme is not likely to be restricted to the State of New York only, but is destined to be far reaching.

In the further review of the lunacy history of the State the Commission seem unnecessarily to go out of the way to express the opinion that the establishment of the Willard Asylum for the Insane of the chronic class, was an "error." The following language is taken from the report:

"Even with the degree of comfort and care by the Binghamton and Willard Hospitals, formerly operated expressly for the care and treatment of the chronic insane, but happily now treating all

with reference to their curability, instances were frequent of insane patients who were about to be transferred there, afflicting themselves and their friends by yielding to the most frantic lamentation solely because of the belief which they entertained, that from that time on they were to be given over to the unchecked ravages of their disease. * * * It is worthy of note that in no other State in the Union, with possibly one exception, has that system, now so happily abandoned, been followed, New York being the only one to fall into such an error."

To permit such a statement to stand unchallenged would be a silent concession that those who permitted and entered upon that great work were influenced by a mistaken sense of duty. It would seem that a measure recommended by the Governor of the State, adopted with almost unanimous consent by the Legislature, its plans and administration the object of careful scrutiny by the State Board of Charities and Commission of Lunacy for a period of twenty-five years, without a suspicion or criticism from any quarter that a serious error had been committed, is now officially pronounced to have been the result of erroneous judgment. It is a sufficient answer to the summary judgment rendered to point to the official reports of the State Boards of Charities and Lunacy, of State officers of this and other States who actually inspected its work from time to time in commendation of this asylum, and to the ministration of mercy and helpful service the Willard Asylum has rendered to thousands of the most forlorn and wretched insane persons transferred mainly from the alms-houses. The writer asserts, without fear of successful contradiction, that the "State Care Act" has only been rendered a possibility through the operations of the Willard law, the principles asserted in its organic act, the educating influences of its annual reports and administration. The report of the Commission does not furnish any reasons for their animadversions upon the Willard law, but it states that "instances were frequent of insane patients who were about to be transferred there, afflicting themselves and their friends by yielding to the most frantic lamentation solely because of the belief which they entertained that from that time on they were to be given over to the unchecked ravages of their disease." It is reasonably probable, if such were the fact, that some of these "frequent instances" might have come to the knowledge of the writer, as he personally received several thousand of the transfers and cannot recall a single case where such an exhibition was made.

Physicians connected with other hospitals have assured me they witnessed no such scenes as are alluded to, and the Commissioners do not state that they personally observed them. But we must remember that perhaps these are official tears, to be more appropriately relegated to the wailing-room of the State House in Albany than spread upon the pages of an official report.

Lest it may seem to some to whom the subject is new that the movement of 1865 was without sufficient warrant, it is necessary again to recur to the situation at that period. The State Medical Society in 1864, as it had previously done prior to the legislation that led to the creation of the State Lunatic Asylum, voted to represent to the Legislature the condition of the insane in the county poor-houses. The inquiry and report of Dr. Willard authorized by the Legislature, was presented in 1865. Governor Fenton, in his message of that year, alludes to the report as follows: "The Legislature of 1864 directed an investigation into the condition of the insane poor confined in the various county poor-houses. A report will be presented showing the deplorable condition of this most unfortunate class. There are in fifty-five counties 1,345 lunatics confined in poor-houses or poor-house asylums, nearly all of whom are incurable; many have become and others are fast becoming incurable from insufficient care and treatment. The time has arrived when legislative provision for them should be made. The propriety of establishing an institution for incurables—an institution that shall relieve county authorities from the care of the insane, should be deliberately considered." Governor Fenton's recommendation was based mainly on the details of Dr. Willard's report, which in many respects was but a repetition of similar abuses previously reported and repeatedly presented to the Legislature. Dr. Willard in his report states: "The suggestion of his excellency seems entirely practical and economical. Let an institution for incurables be established. Let the incurables be there colonized. Take the insane from the counties where they are ill-provided for *first* and change the law relatively to the insane poor, so that counties shall not have the management of them nor any authority over them." The report is a legislative document of the year 1865, and can be consulted. The revelations of the report plainly suggested the enactment of a radical measure that it was hoped would at once and for all time deal an effective blow at the county poor-house system of taking care of the insane. The Willard law was so

framed that its purpose could not be misunderstood. It was "An Act to authorize the establishment of a State asylum for the chronic insane for the better care of the insane poor." Sections 10 and 11 of that Act should be presented in full in order that its comprehensive spirit may be intelligently understood:

"Section 10. The chronic pauper insane from the poor-houses of the counties that shall be designated as provided in Section 9 hereof shall be sent to the said asylum by the county superintendents of the poor, and all chronic insane pauper patients who may be discharged not recovered from the State Lunatic Asylum, and who continue a public charge, shall be sent to the asylum for the insane hereby created, and all such patients shall be a charge upon the respective counties from which they are sent."

"Section 11. The county judges and superintendents of the poor in every county of the State except those counties having asylums for the insane to which they are now authorized to send such patients by special legislative enactments, are hereby required to send all indigent or pauper insane coming to their jurisdiction, who shall have been insane less than one year, to the State Lunatic Asylum."

The principal objects sought by the bill were three:

First. To transfer the chronic insane then in alms-houses to the asylum.

Second. The transfer of chronic cases (when discharged) from the State Lunatic Asylum to the Willard Asylum.

Third. That all recent cases of less than one year's duration should be sent to the State Lunatic Asylum.

The word "chronic" was used instead of "incurable" for obvious reasons; the words "indigent" and "pauper" because they established the status of certain classes in order that they might have a legal settlement, and it was believed the law would reach every dependent insane person in the State. The word "chronic," it was supposed, did not necessarily mean incurable. The term had reference to time or duration. It was well understood that physicians in their ordinary practice attend professionally chronic and incurable cases, whom they did not abandon for this reason. What would be the public estimation of a physician in a community who announced that he would only attend recent and acute cases of disease? He is bound by his ethics to attend upon all, so the State conferred upon the trustees and officers of the Willard Asylum all the powers and duties

possessed by the State hospitals of to-day. We conceive in this view there can be no such thing as a "stigma" attaching to a condition of "chronicity," or "incurability," except from a purely sentimental standpoint. Certainly none was ever intended.*

The original draft of the Willard law was submitted to and approved by Governor Fenton, Hon. Judge Folger, Senators Cornell and White, and Drs. Gray, Willard, Cook, and Dr. Richardson, Chairman of Committee on Public Health, and others. There were divergencies of opinions to be reconciled, and it was supposed this had been harmoniously accomplished.

The report states: "The establishment of this asylum (Willard) upon the lines of chronicity or incurability was opposed by the late distinguished alienist physician, John P. Gray, who in October, 1865, in the JOURNAL OF INSANITY, wrote": (See p. 65, Second Report of Commission in Lunacy.) The writer regrets to refer to this portion of the history of this subject, and hopes he will not be misunderstood in the reference he makes to his late distinguished colleague. He intends in what he states no disrespect to his memory, but as the correction of "errors" is now in order he refers to the subject for that purpose alone. In Dr. Willard's report acknowledgment is made to Dr. Gray for valuable suggestions. While the bill was pending (March, 1865,) it was deemed important that it should have the approval and assent of his acknowledged great influence. Dr. Willard was requested to have an interview with Dr. Gray to arrange some divergencies of views and to secure harmonious coöperation. In the following letter written by Dr. Willard, there is evidence that Dr. Gray was not only consulted about the bill, but left on Dr. Willard's mind the impression of Dr. G.'s hearty approval of it:

ALBANY, March 14, 1865.

My Dear Doctor:

Your favor of the 13th was received this morning, and in reply in relation to the bill for the chronic insane or the "Beck Asylum," all has progressed satisfactorily. Dr. Gray came in to see me on Friday afternoon and I had a full conversation with him in relation to the changes that had been made. I stated each one separately and the objects and advantages of the same. He gave assent that the changes were well made. At my suggestion he procured the bill and brought (it) to my office on State Street on Saturday morning,

* The writer has read the extract from the Lunacy Commissioners' Report with surprise when he recalls the fact that it is a part of the public record of the State hospital service, that the President of the Board was appointed to and accepted the office of medical superintendent of the Binghamton Asylum for the Chronic Insane.

where we went over it section by section. We were entirely harmonious on every point since the Commissioners *may* not *must* procure Ovid. Only one word in the bill was changed—"not to exceed two dollars per week for their *care*" was made to read for their "board," so as not necessarily include clothing in the word *care*. The bill met Dr. Gray's entire approval, as it does mine, as it does yours; and in relation to the *plan* for the institution I am happy to assure you that I believe that our views *now* entirely harmonize. I am greatly pleased that it is so, and now we need to give the matter a long pull, a strong pull and a pull all together. I think confidently that the bill will meet with no delay when it is once reached.

In haste, sincerely yours,

S. D. WILLARD.

Dr. Willard died two weeks subsequent to the date of the above letter and the name of the asylum was changed from the "Beck Asylum" to the "Willard Asylum." The following first of May, Dr. Gray, Dr. Williams, and the writer were appointed and accepted the office of Commissioners to locate and build the new asylum. The reasonable inference from Dr. Willard's letter and Dr. Gray's acceptance of office would be, that at that time Dr. Gray approved the new bill. The report makes an extended quotation from an article which appeared in the JOURNAL OF INSANITY, October, 1865, which it is alleged was written by Dr. Gray, to show that he was opposed to the Willard law. The writer was of the opinion at the time it appeared that it was a vigorous denunciation, but it can have no force here as an expression of Dr. Gray's views, as he did not write the article. Dr. Gray it is well known was not in sympathy with the Willard movement at certain stages, but it should be stated in justice to him that at one time he expressed the opinoin that the state having entered upon the new policy he had no opposition to make, and did not make any.

The creation of the Willard Asylum does not seem to have exercised any influence in retarding additional hospital provision for the insane, as is shown by the fact that no less than four new hospitals were established during the decade beginning with the year 1865.

In a public report discussing the delicate relations of the insane and of the hospitals to the State, it might be expected that much would be found to be commended, and, as human judgment is not infallible, exception would be taken to some portion. The reference to the inception of the Willard Asylum is calculated to be so misleading, judged from the standpoint of 1865, and the attempt

to depreciate its administration is so unjust, that, respect for the memory of the dead, who would speak if living, and justice to the living have seemed reasons for breaking a silence the writer would have otherwise preferred to preserve. The history of lunacy in the State of New York is not yet complete, but when the effects of recent changes are more clearly perceived there will come the opportunity of rendering an impartial judgment of the purposes, worth and influence of the Willard Asylum as they relate to the care of the insane. *Factum est illud, sed fieri infectum non potest.*

(Signed)

Philadelphia, March 17, 1891. JOHN B. CHAPIN.

LETTER FROM FRANCE.

Hypnotism in its Relations to Criminality. The Eyraud-Bompard Case.

A recent criminal case in Paris presents much of interest in a medico-legal point of view. Attention has been specially drawn to it because the criminals, a man named Eyraud, and a disreputable woman named Gabrielle Bompard, had been sought for a long time, having eluded the efforts of the police. They went first to the United States, from whence the woman returned alone and gave herself up to the courts. Eyraud was arrested later in Havana, and brought back to France. The medico-legal interest of this case consists in the fact that it is the first in which it has been attempted to utilize the plea that one of the criminals could have committed the crime under the influence of hypnotism, and therefore should be declared irresponsible.

It seems useless to relate here the circumstances of the crime; suffice it to say that, according to all the evidence, the criminals acted in concert in the preparations for the deed. They rented apartments where the woman Bompard acted as a decoy to an individual who was attracted there by the prospect of an intrigue and who was assassinated. Eyraud and his accomplice have each given a different version of the manner in which the murder was committed. Which is correct is unimportant; the essential fact is their complicity. Having committed their crime they fled together, and the woman Bompard continued living with Eyraud as his mistress. Later, however, they separated and the woman became the mistress of another individual, who brought her back to France and who seems to have had some influence over her in deciding her to give herself up to the police. From this moment that the Bompard woman became a prisoner, the interest in the case begins.

It was noted as remarkable that this woman showed a complete indifference as to her situation, and that she told in a perfectly unconcerned manner all the details of her version of the crime. When taken to the place where the crime had been committed and to where the corpse had been found, when she had to confront other witnesses, only one thing seemed to concern her; that was the impression that she was making. She was evidently pleased to find herself an object of interest. In spite of the gravity of her situation, she laughed and joked, indulged in coquetries,

and acted as if she were indulging in innocent flirtations rather than in the situation she was placed by the accusation hanging over her. Moreover, as her guilt was demonstrated to her, she tried to appear less as an accomplice of the assassin than as an involuntary witness, dazed by the rapidity of the events that passed before her.

Astonished at her attitude and singular behavior, the magistrates queried whether this woman was not insane and irresponsible, and in order to clear their doubts, they intrusted her examination to three distinguished medico-legal authorities, Drs. Brouardel, Motet and Ballet.

During three months these gentlemen gave careful study to the case of the Bompard woman. They took up her past history from her infancy as minutely as possible, and followed her through all the phases which the judicial instruction had directed to be studied. They arrived at the conclusion that she appeared to have actually no consciousness of the moral value of acts or of those which had passed under her eyes and with which she had been so intimately connected.

But apart from this they found absolutely no trace of mental alienation; she had not even the mental weakness which, under certain conditions, can be considered as the equivalent of insanity. They recognized on the other hand that she was intelligent, that she had sufficient self-control, that she played her part well, saying only that which she wished to say, and stopping in her statements as soon as she perceived that she was likely to compromise herself. Such being the facts, they formulated their conclusion that the Bompard woman was not insane, but was nevertheless defective, being characterized by an imperfect development of the moral sense without concurrent arrest of intellectual development; but, that serious as were her moral deficiencies, she could, nevertheless, not be considered as irresponsible.

If this were all, the case would not be different from many others, but here enters another element introduced by the defence. It was brought out that for a long time the woman Bompard had been a hypnotic subject, that she had been frequently hypnotized, and, as it was readily shown, she passed easily into hypnotic trance.

There has arisen in France a group of *savants*, few in number it is true, but none the less enthusiastic in propagating their views, who hold that the essential and primal element of hypnotism

is suggestion. According to them every one who falls easily into hypnotic sleep also falls easily under the influence of suggestion, which would be effective not only during the trance, but after it has ceased, when the individual appears entirely in his or her normal condition; this condition being established, it controls completely and absolutely the acts of the individual, and consequently by expressing his will puts him in a condition of true irresponsibility.

The professors who hold these views residing in the city of Nancy, their doctrine has been called that of the School of Nancy; in opposition to that maintained in Paris, of which Prof. Charcot is the most prominent representative, and which has been designated the doctrine of the Salpêtrière.

It is apparent how much the doctrine of Nancy could be utilized in favor of the Bompard woman, who might be shown in a more favorable light, not as an accomplice in a fearful crime, but as a victim herself—almost worthy of interest and compassion. The advocates for the defence obtained the aid of a Nancy professor, M. Liègeois, who was called as an expert witness.

It must have been a source of much satisfaction for M. Liègeois thus to find an opportunity of expounding his doctrine in a case of such general interest, and he anticipated undoubtedly much reputation as a consequence of the part he was called upon to take. He had thus a fine opportunity to demonstrate that the doctrine of which he was one of the most prominent promoters, rests on the most solid foundations, and that courts of justice would hereafter have to take it into account. But we must admit that the result came short of the expectation.

In a long conference, which lasted not less than four hours, M. Liègeois was only able to formulate suppositions and affirmations based only on laboratory experiments, which were subjected to numerous criticisms and convinced no one. In a state of hypnotism, he said, the will is absolutely abolished. One can produce in the hypnotized subjects so complete an abolition of the moral sense as to cause them to commit most atrocious crimes; he can order them to shoot any indicated person with a revolver or to stab one with a knife, and, if not prevented, they will carry out the order. The influence thus exercised over the will during the trance condition may persist after its cessation and under conditions in which the subject acts as if he were really in a state of hypnotism. He acts in an irresistible and impulsive manner, and

retains no recollection of what he has done. In this state, which M.Liégeois calls the "second condition" the subject may appear to act as perfectly conscious of what he is doing, but upon returning to his normal condition he recollects nothing. He is thus in a state of temporary mental alienation, in which his will is annihilated and in which it has been possible to suggest to him to perform not only one act, but a whole series, covering a considerable space of time, many weeks for example; these acts being produced at intervals and long after the suggestion has been made.

Applying these general principles to Gabrielle Bompard, and basing his opinion on the fact that she was a hypnotic subject, Liègeois held that it was possible that she had received suggestions and acted them out in her "second condition." The acts once performed, she had forgotten them. This would explain why her testimony varied from that of her accomplice. All this, perhaps, is attractive, wonderful and capable of creating an impression on certain minds. But science is not content with *doctrinaire* affirmations and theories; it requires facts, especially does it require them when called to apply its principles to matters so important as those of legal medicine. This is exactly where the argument of M. Liègeois was deficient; he could not cite, as it was justly remarked, a single instance of a crime committed through hypnotic suggestions. As regards Gabrielle Bompard, MM. Brouardel, Motet and Ballet replied:

(1.) That it was very true that she had frequently been hypnotized, and that she had submitted to many hypnotic experiments; but as she herself admitted, Eyraud had never attempted to hypnotize her.

(2.) That if G. Bompard had been thus subject to suggestions she would have been influenced by any one making them. But a physician who had many times hypnotized her had suggested to her, but always without success, that she change her habits and improve her morals. Are we to admit that evil suggestions can be the only ones effective?

(3.) Shall we admit again that Gabrielle Bompard was hypnotized during the three weeks preceding the crime, during which she, in concert with her accomplice, made all the preparations? All that was done before, during and after the murder, is much too complex to have been suggested in hypnotic sleep. Moreover, if during this time she had been entranced she would not have

remembered any of her acts; while in fact she remembered them all, but endeavored to present them in a manner most favorable to her cause.

(4.) Finally, since the suggestion in the hypnotic sleep has to be made in a loud voice, it is therefore certainly heard by the subject, who recognizes it and applies himself to carry it out. It is moreover very difficult to verify the reality of the hypnotic sleep. The means indicated by the School of Nancy are not infallible. They are based on the condition of anæsthesia of the subject. But we must not forget that nearly all subjects of hypnotism are hysterical individuals, in whom anæthesia is a characteristic symptom, and that they have nearly all perversions of smell and taste. On the other hand, what confidence can be put in anything said by a hysterical subject? It is one of their special characteristics to be essentially theatrical and unreliable, almost as unreliable as infants.

Under these circumstances it can be affirmed that Gabrielle Bompard did not commit her crime under the influence of hypnotic suggestions, and that consequently it cannot be held in the future that outside of the condition of actual hypnotic trance any crime has ever been or can be committed from a suggestion.

The prosecuting magistrate, supporting himself by the opinion of MM. Brouardel, Motet and Ballet, strongly repudiated the intervention of hypnotism or of any mysterious agent whatever in this case. "It is my duty," said he, "to combat these morbid theories which, under the guise of hypnotism, tend to nothing less than to protect the criminals and pose them as victims. If we admit these doctrines justice is no longer possible, and its *role* is finished;" and appealing to the authority of Charcot, he added: "Verily, in the state of provoked sleep the subject may receive a suggestion, in consequence of which he may at his awakening carry out the act suggested; but though the will be in some manner overpowered it is not abolished. The knowledge of good and evil persists. And the subject can always preserve sufficient will power to give check to the counsels of evil. It is only when he desires that he obeys the suggestion. This is incontestable, as all well observed facts establish, without any of them favoring the contrary."

Eyraud was sentenced to death. Gabrielle Bompard was found guilty by the jury, but with mitigating circumstances, and was sentenced to twenty years of penal servitude.

Speaking of M. Charcot and Hysteria suggests a method of treatment that this distinguished physician advocates in certain cases. It is well known that these patients sometimes put themselves into conditions which, without being simulated in the strictest sense of the word, are nevertheless in great part intentional. Thus some refuse to eat, saying that they cannot take anything; other falls into a state of languor that aggravates their disorder. Every one about them is worried and uncomfortable; they are pitied and given the utmost attention, but they enjoy being the objects of such solicitude—they make no effort towards improving their condition. What they need is occupation. The kind of satisfaction which they find in this takes from them the desire to recover.

Isolation of Hysterical Cases.

The only remedy in such a situation is isolation. They should be removed from their ordinary surroundings and confided to strangers, who should be at the same time firm and kindly in their management of them. Isolation thus carried out has all the good effects of a valuable curative agent, which, however, does not dispense with the employment of the therapeutical methods indicated in such cases.

An interesting question just now being agitated in France is whether there is really an essential epilepsy or whether all the epilepti-form manifestations of every kind are not purely symptomatic. The close connections that exist between insanity and epilepsy render this question important to those who are especially interested in the study of mental diseases. The most radical opinion on this subject and one that has been recently maintained by Dr. Féré, is that between the epilepsy which has been heretofore denominated essential and the partial or Jacksonian epilepsy, there is only a difference of degree and that both are alike symptomatic. Such being the case we should not speak of epilepsy as a neurosis, but should consider the epileptiform phenomena as invariably the result of cerebral lesions; admitting at the same time that these latter may be variable in form, extent and localization. In the case of partial epilepsy it is almost always possible to find the lesions if pains is taken to seek for them in the cortical centres, which are the seats of the irritation giving rise to the convulsive symptoms. In cases of ordinary epilepsy the lesions will be diffused, affecting the entire cortax of the brain and consisting in special alterations of

The Nature of Epilepsy.

the cerebral cells. In both cases the lesions will be of an irritative nature.

This theory of epilepsy is far from being yet elucidated and it may be open to many objections. Nevertheless it is an attractive one. And from the point of view of mental pathology, it permits an easy explanation of the phenomena of epileptic insanity, analogous as a whole in its manifestations with the convulsive symptoms and notably by its unexpected invasion, the disorder that it causes in the acts and ideas of the patient, the impulsive character that it gives to them, and finally the obtunding of the intellect and the state of unconsciousness in which it leaves them for a longer or shorter time.

The Last Annual French Congress of Mental Medicine.

The first annual congress of French alienists, which met at Rouen, last August, was a complete success. More than a hundred members responded to the call of the organizers, and the scientific communications were numerous and interesting.

Relations of General Paralysis to Syphilis.

One of the questions discussed at Rouen was that of the relations of general paralysis to syphilis. In a luminous memoir which he had been deputized to offer on this subject, Dr. Delaporte showed that the etiology of general paralysis is still surrounded with much obscurity. If certain causes, such as congestive tendencies, cerebral traumatism, overwork, are admitted by all alienists, there are yet others in regard to which there is not such complete accord, and the influence of syphilis is notably one of the points in regard to which there exists the greatest difference of opinion. The majority of those who have expressed themselves on this subject have been of the opinion that, if syphilis should really be counted among the factors of general paralysis, we should be very cautious in the interpretation of the facts, and that we have no right to hold, because an individual has general paralysis, and has suffered from syphilis, that the two disorders stand to each other necessarily in the relation of cause and effect. It is necessary before everything else, moreover, to determine whether the syphilis of the individual had not exhausted itself before even the beginning of the general paralysis.

Being consulted on the question whether it were advisable to create in France special asylums for the so-called criminal insane, the congress, with only three dissenting voices, pronounced in favor of the negative. But they adopted a resolution that there should be in every asylum special accommodations for this class of individuals. However, a somewhat important distinction was made between the criminals who become insane and the insane who commit crime. The latter are in reality not different from ordinary patients, and have a right to be treated like them. They should be cared for in the asylums of their respective departments. For the criminals who become insane the best plan is that carried out in France at the Gaillon prison, namely, to treat them in an annex of the prison where they are separated from the other prisoners.

The Advisability of Establishing Special Asylums for the Criminal Insane.

The congress admitted, in principle, that agricultural colonies distinct from asylums, ought to be founded only exceptionally, and when the agricultural work of the asylum cannot be carried on around the establishment.

Agricultural Colonies Distinct from Asylums.

Before separating, the members of the congress decided that the next meeting should take place at Lyons in 1891.

It is rumored that it is the intention of a member of the present Chamber of Deputies to reintroduce a bill which was once brought before the Chamber fifteen years ago by the celebrated Gambetta, and which was not even discussed at that time; a law by virtue of which the admission of patients into asylums shall only be allowed on the verdict of a special jury. The introduction of such a bill indicates that that deputy knows very little about insanity and the welfare of the insane. In the interest of the latter and the interest of society in general, we can only wish for the project the fate it formerly received. *Di talem a nobis avertite pestem!*

The Jury in the Commitment of the Insane.

DR. VICTOR PARANT.

TOULOUSE, December 28, 1890.

BRITISH CORRESPONDENCE.

The psychological items of interest on this side are at present numerous, if not of exceptional importance. "The New Lunacy Act" is agitating the minds of the English medical officers of asylums, and a very vigorous discussion followed a paper by Dr. Percy Smith, read at Bethlem some months ago. The majority favored Dr. Smith's views that it has made the administrative machinery more cumbrous than ever; that much time is lost in getting formalities arranged; much injury is done to patients, and serious inconvenience and expense is incurred by relatives. The justices do not know their duties or understand the responsibilities, and much trouble is occasioned by justices who may sign orders, declining to do so, and others who may not sign, doing what they ought not to do. We have not yet recognized in our British parliament that lunacy is disease, that a lawyer and politician are not omniscient, and that a medical man ought to know his own business better than any one else. But then Britain is following in the footsteps of America — it is getting democratic; and because the politician is *all powerful*, he thinks he is *all wise*.

The New Lunacy Act.

Though in this country we have not the elaborate system of training adopted in the McLean Asylum, and probably never will have, we are approaching solidarity in our way of dealing with attendants. Instead of a few asylums training and examining independently, as heretofore, the Medico-Psychological Association has formed and adopted a uniform scheme for all asylums that may voluntarily fall in with it, and no attendant or nurse can be examined for the Association's certificate who has not served two years in one asylum, and undergone a course of special training satisfactory to the council of the Association. The first examination takes place in May, and a large number of candidates have entered for it. This is a wise step, and the results from a united scheme must be more satisfactory than from the efforts of individual superintendents.

The Certificate for Attendants.

This attack has about spent itself after infecting all classes and many professions. The report of the committee of the British Medical Association and the general sense of the medical and legal profession in this country is unfavourable to

The Hypnotism Mania.

the practice except it be carefully hedged in by safeguards and legal restrictions. It has been incautiously "boomed" like the Koch lymph, has gone up like a rocket and come down like a stick. And yet there is good in it if we could extract it without the poison.

Open Door System.

We are hearing less and less of the "Open Door System" now, and there seems rather more of the strictly medical spirit manifesting itself in our asylum work. Everywhere there is a tendency to make more of the pathological material so abundant in asylums, and to specialize this work. In addition, medical work and clinical investigation are pursued on a large scale, and some very good results are accruing from time to time. Still there are types of asylums and superintendents who will not adapt themselves to any new movement of reform, by whatsoever name it may be called, and thus we get individuality and heterogeneity.

A. C. C.

Death of Dr. Gundry.—The specialty of mental medicine is grievously afflicted by the news of the death, on April 23d, of Dr. Richard Gundry, Superintendent of the Maryland Hospital for the Insane, at Catonsville, near Baltimore. The deceased was born at Hampstead Heath, England, in 1830. Having left the old world for the new in his early boyhood, he graduated in medicine at Harvard University in 1851. His career as an alienist began at the Central Insane Asylum, Columbus, in 1855. Until 1877 he was prominently identified with the Ohio asylums. In 1878 he assumed the superintendency of the Maryland institution at which he died. He was professor of materia medica and mental diseases in the College of Physicians and Surgeons, Baltimore. In our next issue an attempt will be made to pay a fitting tribute to Dr. Gundry's memory by publishing a sketch of his life.

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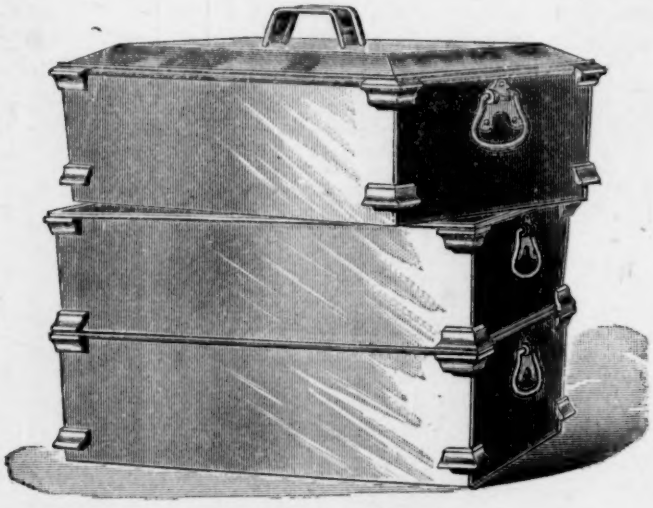

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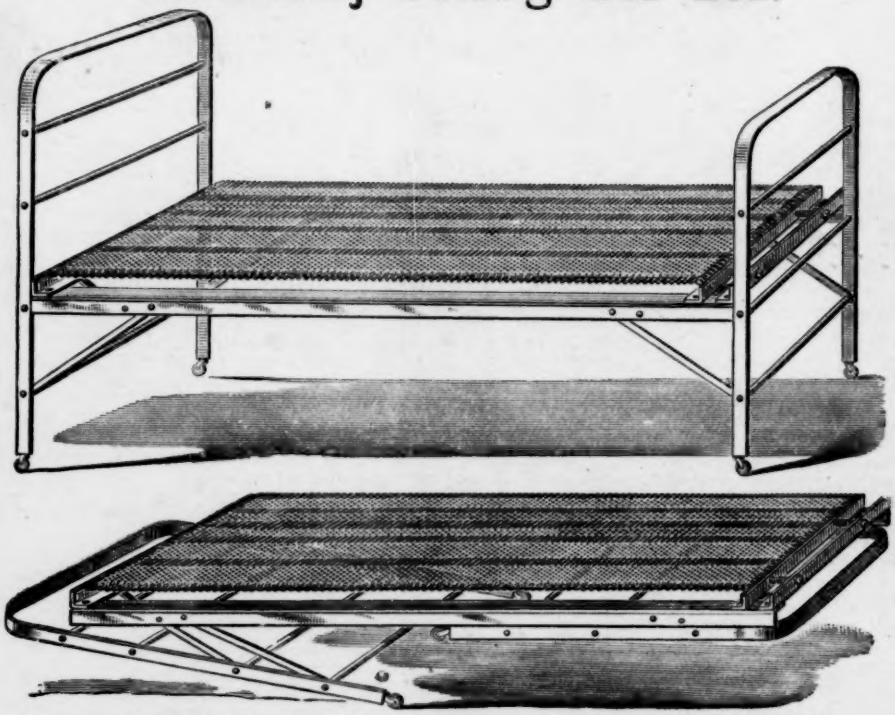

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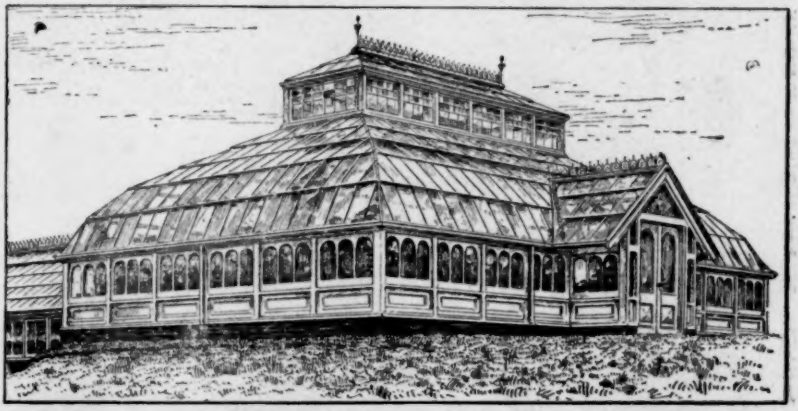

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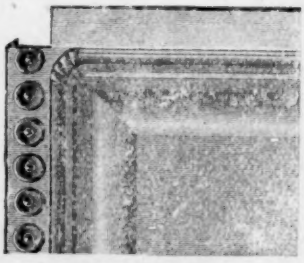

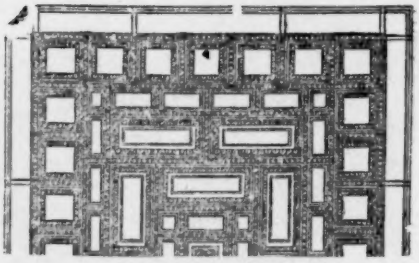

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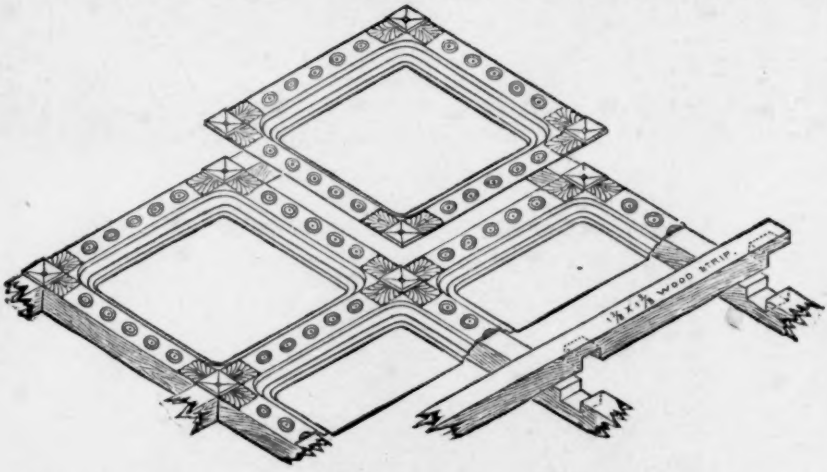

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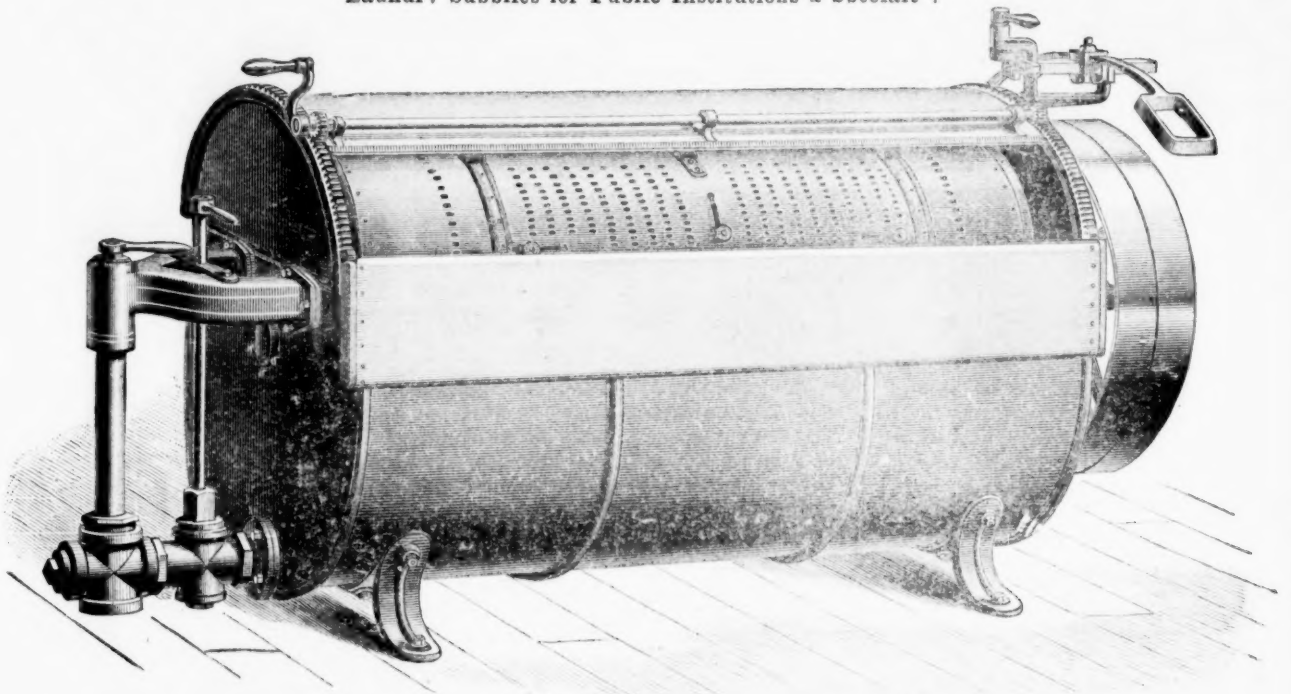

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